REVISION OF THE NEARCTIC SPECIES OF XYLOPHYLAX KRIECHBAUMER

(HYMENOPTERA: ICHNEUMONIDAE)

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ABSTRACT

The nearctic species of *Xylophylax* Kriechbaumer (Hymenoptera: Ichneumonidae) are revised, including seven new combinations - *alaskensis* (Ashmead) n. comb., *aldrichi* (Davis) n. comb., *longicauda* (Horstmann) n. comb., *macdunnoughi* (Viereck) n. comb., *macrocephala* (Provancher) n. comb., *separata* (Viereck) n. comb., *vancouverensis* (Harrington) n. comb., six new species - *albicoxa*, *breelandi*, *brevicauda*, *genalis*, *montana*, *ruficincta*, and two new subspecies - *vancouverensis maculosa*, *vancouverensis tibialis*. Three species names are placed in synonymy - *atrocoxalis* (Ashmead) and *xanthognatha* (Rohwer) = *aldrichi* (Davis), *lipoparia* (Viereck) = *alaskensis* (Ashmead). In addition, the following palearctic species become new combinations - *lucida* (Clement) n. comb., *megacephala* (Gravenhorst) n. comb., *melanura* (Holmgren) n. comb., *obscuripes* (Holmgren) n. comb., *pectoralis* (Kriechbaumer) n. comb., *rufocoxalis* (Clément) n. comb., *xoridiformis* (Holmgren) n. comb., *xoridoidea* (Strobl). The genus *Xylophylax* is redefined and a key to the world sub-genera, species-groups, and nearctic species is provided. Descriptions, illustrations, and distribution maps are given for each nearctic species and there is a summary of the biology of the genus.

INTRODUCTION

Thirteen nearctic species of *Xylophylax* (Kriechbaumer) (formerly *Rhimphoctona*) (Ichneumonidae) are revised in this paper, including seven new combinations - *aldrichi* (Davis), *longicauda* (Horstmann), *macdunnoughi* (Viereck), *macrocephala* (Provancher), *separata* (Viereck), *vancouverensis* (Harrington), six new species - *albicoxa*, *breelandi*, *brevicauda*, *genalis*, *montana*, *ruficincta*, and two new subspecies - *vancouverensis maculosa*, *vancouverensis tibialis*.

Replacement of the name *Rhimphoctona* Forster with *Xylophylax* Kriechbaumer results in all the palearctic species becoming new combinations - *lucida* (Clément), *megacephala* (Gravenhorst), *melanura* (Holmgren), *obscuripes* (Holmgren), *pectoralis* (Kriechbaumer), *rufocoxalis* (Clément), *xoridiformis* (Holmgren), and *xoridoidea* (Strobl).

A key to the world sub-genera, species groups and nearctic species is presented. All known species world-wide are arranged in species groups in what is believed to be a natural order. Each nearctic species is described, illustrated (scanning electron photomicrographs) and its distribution plotted on a map.

A summary of what is known of the hosts of *Xylophylax* species is presented in table form. Biological information is sparse and little is known of the eastern palearctic fauna so that a detailed phylogenetic and zoogeographic analysis is premature at this time. Phylogenetic relationships at the generic level are briefly discussed and a cladogram (Fig. A.) is presented depicting the distribution of derived character states (synapomorphs, autapomorphs) and nearness of relationship among the species groups of Xylophylax.

The following institutions and private collectors (with abbreviations as they appear in the text with regards to deposition of type material) kindly lent specimens used in this study.

American Museum of Natural History (AMNH). New York, New York (Marjorie Favreau)

California Academy of Sciences (CAS). San Francisco (W. J. Pulawski)

Canadian National Insect Collection (CNC). Ottawa, Ont. (J. Barron)

Clement Dasch Collection (CDC). New Concord, Ohio (C. Dasch)

Cornell University Collection (CUC). Ithaca, New York (Q. D. Wheeler)

David Wahl Collection (DWC). Lawrence, Kansas (D. Wahl)

Henry and Marjorie Townes Collection (HMT). Gainesville, Fla. (H. K. Townes)

Oregon State University (OSU). Corvallis, Oregon (John D. Oswald)

P. M. Sanborne (PMS). Ottawa, Ontario (P. M. Sanborne)

University of Alberta Collection (UAC). Edmonton, Alberta (D. Shpeley)

University of California, Berkley (UCB). Berkley, California (L. E. Caltagirone)

University of California, Davis (UCD). Davis, California (R. O. Schuster)

University of California, Riverside (UCR). Riverside, California (Jack Hall)

University of Guelph Collection (UGC). Guelph, Ontario (S. Marshall)

University of Kansas, Snow Museum (KSM). Lawrence, Kansas (G. Byers)

United States National Museum (USNM). Washington, D. C. (S. R. Shaw)

Illustrations. Each species is illustrated with the aid of scanning electron photomicrographs using uncoated specimens.

Measurements. The way in which measurements are made are given in my revision of *Sinophorus* (Sanborne, 1984) and are not repeated here. Additional measurements were made in the following manner. To obtain the ratio of length of the inner margin of the antennal scape *vs* the length of the outer margin, the inner margin must be measured first, then the eye-piece micrometer must be lined up exactly parallel to that measurement along the outer margin (i.e., the curvature of the ventral portion of the outer margin is not taken into account as it is variable from species to species). The length of the teeth of the mandible is taken from a line passing perpendicularly through the bases of the teeth at the point where the inner margins of the teeth meet in a 'V'.

Biology

What little that is known of the biology of *Xylophylax* indicates that the species are primary internal parasites of wood-boring coleopterous larvae of the families Cerambycidae, Curculionidae, and possibly Scolytidae. This information is summarized in table form below. Some of the plant associations are inferred from knowledge of the host larva's identity (i.e., it is assumed that species of *Xylophylax* will probably attack preferred hosts throughout their geographic range in whatever tree species the hosts chose).

Table 1. Summary of hosts and host-plant associations for the world species of *Xylophylax*.

Species	Plant Associations	Hosts
Obscuripes Group		
macrocephala	*Picea glauca* *Pinus resinosa*	*Tetropium cinnamopterum*
obscuripes	unknown	unknown
rufocoxalis	unknown	unknown
Longicauda Group		
longicauda	*Pinus contorta* *Picea*, *Abies*	unknown
montana	unknown	unknown
Megacephala Group		
alaskensis	*Picea glauca*	*Tetropium parvulum* *Tetropium velutinum*
aldrichi	*Pseudotsuga menziesii* *Pseudotsuga taxifolia* *Larix occidentalis* *Abies concolour* *Abies shastensis*	*Tetropium velutinum* *Orthotomicus lasiocarpa*

continued....

Table 1. continued.

Species	Plant Associations	Hosts
lucida	*Picea*	*Tetropium fuscum* *Tetropium gabrieli*
megacephala	*Fagus*, *Ostrya*, *Quercus* *Salix*	*Clytus arictis* *Plagionotus arcuatus* *Pyrrhidium sanguineum*
nigrifemur	unknown	unknown
separata	*Picea glauca*	unknown
xoridiformis	unknown	unknown
xoridoidea	probably conifer	*Tetropium fuscum*
Pectoralis Group		
albicoxa	*Carya*, *Juglans nigra* *Cercis canadensis*	*Magdalis* (Curculionidae) *Tillomorpha geminatus*
genalis	unknown	unknown
pectoralis	*Picea*, *Abies*	*Caenoptera minor*
Vancouverensis Group		
breelandi	unknown	unknown
ruficincta	*Pseudotsuga menziesii*	unknown
vancouverensis	unknown	unknown
Macdunnoughi Group		
bimaculata	unknown	unknown
macdunnoughi	*Picea mariana*	unknown
Brevicauda Group		
brevicauda	unknown	unknown

* specimens of *melanura* were not available for study and the species-group to which it belongs cannot be ascertained at this time, therefore, it has been left out of the above table.

Phylogeny

Table 2 below lists seventeen characters of *Xylophylax* with their postulated ancestral and derived states (based upon out-group comparisons with its sister group *Pyracmon*, and the closely related genus *Nemeritis*). The information presented in the table is superimposed on a cladogram below, depicting nearness of relationship. No attempt has been made to include a zoogeographic analysis or a time scale on this cladogram because of a lack of biological information and an incomplete knowledge of the palearctic fauna, particularly the eastern palearctic component.

The generic relationships of *Xylophylax* alluded to above are now generally accepted and are not dealt with here. Detailed discussions of this matter can be found in Sanborne, 1986a, and Barron and Walley, 1983.

Table 2. Seventeen characters of *Xylophylax* and their postulated ancestral (a) and derived (d) states (superscripts ', '', ''' indicate 1st, 2nd, and 3rd derived states).

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1 a. Vertex short.
d. Vertex moderately long ', '' (arose twice); long '''.

2 a. Antennal scape with apical margin weakly oblique.
d. Antennal scape with apical margin moderately oblique '; strongly oblique '', ''' (arose twice).

3 a. Temples flaring.
d. Temples not flaring (sloping inwardly in dorsal view) ', '' (arose twice).

4 a. Gena with width less than basal width of mandible.
d. Gena as wide or wider than basal width of mandible '; secondarily narrowed to less than basal width of mandible ''.

5 a. Clypeus broad, flat, with small, median projection on anterior margin.
d. Clypeus broad, flat, without a median projection '; narrow, with small median projection on anterior margin ''; narrow, without median projection '''.

6 a. Mandible with lower tooth as long as or shorter than upper tooth.
d. Mandible with lower tooth 1.8-2.3 x as long as upper tooth '; lower tooth 1.5-1.6 x as long as upper tooth ', '' (arose twice).

7 a. Mandible long, weakly tapering.
d. Mandible short, strongly tapering '.

8 a. Head about as long as wide.
d. Head wider than long in frontal view '.

9 a. Thorax not dorso-ventrally flattened.
d. Thorax dorso-ventrally flattened '.

10 a. Petiolar segment short, stout.

continued....

Table 2. continued.

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10 d. Petiolar segment elongate ', '' (arose twice); very short '''.

11 a. Ovipositor long, approx. 2.5-3.5 x as long as hind femur.
   d. Ovipositor of medium length, approx. 1.5-2.3 x as long as hind femur '.
   Ovipositor short, approx. 1.5 x as long as hind femur ''.

12 a. Ovipositor with depth at mid length approx. 0.5 x as wide as hind basitarsus or more (measured at mid length of basitarsus).
   d. Ovipositor with depth at mid length less than 0.5 x the width of hind basitarsus '.

13 a. Ovipositor with dorsal notch distinct.
   d. Ovipositor with dorsal notch indistinct '.

14 a. Ovipositor with tip not upturned.
   d. Ovipositor with tip upturned ' .

15 a. Face of males entirely black.
   d. Face of males yellow with black markings to entirely yellow '.

16 a. Abdomen of both sexes entirely black.
   d. Abdomen of both sexes partially to entirely rufous '.

17 a. Clypeus of females entirely black.
   d. Clypeus of females partially to extensively reddish'.

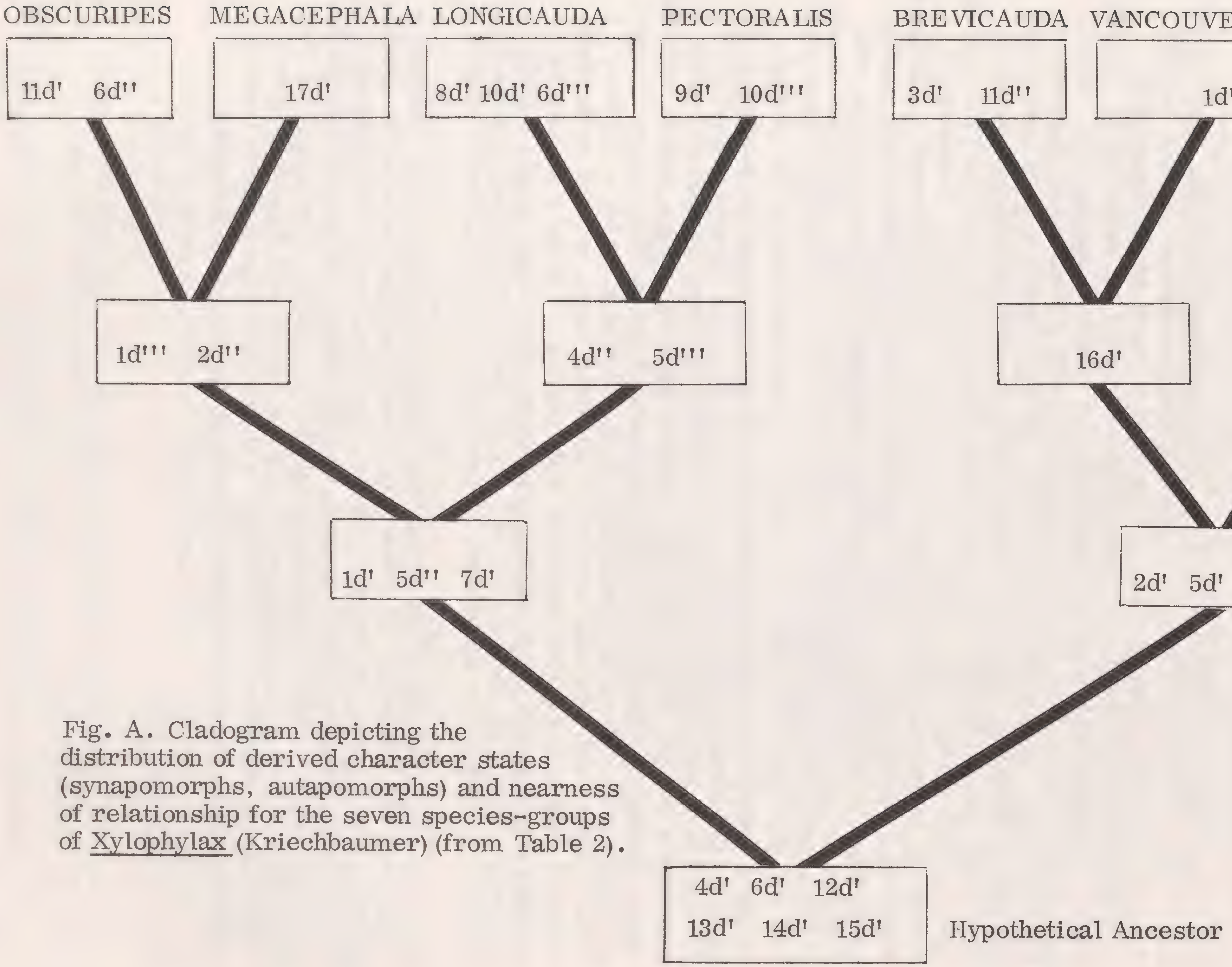


Fig. A. Cladogram depicting the distribution of derived character states (synapomorphs, autapomorphs) and nearness of relationship for the seven species-groups of *Xylophylax* (Kriechbaumer) (from Table 2).

TAXONOMY

The Genus Xylophylax Kriechbaumer

Xylophylax Kriechbaumer, 1878. Ent. Nachr. 4: 210
Type: Pyracmon (Parapyracmon) rufocoxalis Clément. Designated by Townes, 1970. Type material examined in 1984.

Fore wing 3.7 to 10.0 mm. long. Body moderately slender. Inner margins of cmpd. eyes not distinctly indented opposite antennal sockets, weakly diverging ventrad. Gena 0.7 to 1.4 x as wide as basal width of mandible. Clypeus narrow to broad, its antero-lateral corners not extending to, extending to, or extending beyond tentorial pits, its anterior margin blunt, evenly convex or more or less angulate, sometimes with a small tooth medially. Mandible long, weakly tapering to short, strongly tapering, with lower tooth slightly to distinctly longer than upper tooth. Temple of moderate length to very long, usually swollen and sometimes flaring so that head is wider across temples than across eyes. Genal carina joining oral carina. Mesopleuron matte, its punctures fine to moderately coarse, usually separated by distance less than or equal to dia. of single puncture. Posterior mesosternal carina complete. Propodeum long, with carinae moderately strong to strong, with costulae and/or lateral longitudinal carinae rarely absent, with areola small to moderately large, as long as or longer than wide, sometimes partially to entirely separated from petiolar area by a transverse carina. Propodeal spiracle circular or elliptic. Fore tibia with apex produced as a small tooth outside. Hind basitarsus without a mid-ventral row of closely spaced hairs. Tarsal claws moderately long with teeth extending from base to midlength or sometimes beyond. Fore wing with areolet moderately large, rarely petiolate above, receiving second recurrent vein distad of the middle. Nervulus opposite basal vein. Nervellus intercepted by discoidella at or below middle, usually pigmented. Petiolar segment of abdomen short, stout to moderately long and weakly and evenly decurved, with petiole 1.0 to 1.5 x as long as postpetiole. Glymma large, deeply impressed. Thyridium small, a little elongate. Ovipositor approx. 1.5 to 3.0 x as long as hind femur, unusually slender, cylindric, its tip upcurving, the dorsal notch indistinct or absent.

This is a moderate sized genus with a holarctic distribution. The genus comprises two subgenera with twenty two described species in seven species groups. Their hosts, as far as is known, are wood-boring coleopterous larvae in the families Cerambycidae, Curculionidae, and possibly Scolytidae. Most species are rare in collections and this is probably due to the fact that their distribution and numbers within a given habitat are dependent upon a rather patchy resource, i.e., timber in the proper stage of decay bearing suitable hosts. See table 1 for a summary of the biology of the genus.

Key to the Subgenera, Species-Groups, and Nearctic Species of Xylophylax

This key will correctly place all known species of Xylophylax into subgenera and species-groups but will identify only nearctic species.

1. Vertex short to moderately long, with length behind lateral ocelli 0.5 - 1.1 x the length of ocellar triangle. Clypeus broad, with antero-lateral corners extending beyond tentorial pits, its anterior margin without a small median tooth though sometimes broadly angulate. Mandible long, weakly tapering. Abdomen usually partially to entirely rufous or, rarely, entirely black.. Euraspidion Sanborne (p. 28).2.

Vertex moderately long to long, with length behind lateral ocelli 0.8 - 1.9 x the length of ocellar triangle (almost always greater than 1.0). Clypeus narrow, with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small median tooth (sometimes absent or indistinct in males). Mandible short, strongly tapering. Abdomen uniformly black.. Xylophylax Kriechbaumer (p.11). ....6.

2. Vertex moderately long, with length behind lateral ocelli approx. 0.8 - 1.1 x the length of ocellar triangle. Temples, in dorsal view, distinctly inflated. Mandible with lower tooth approx. 1.8 - 2.0 x as long as upper tooth. Abdomen extensively to entirely rufous. Nearctic... ....Vancouverensis Group (p.30).3.

Vertex short, with length behind lateral ocelli approx. 0.5 -0.8 x the the length of ocellar triangle. Temples, in dorsal view, not inflated, moderately sloping inwardly. Mandible with lower tooth approx. 1.0 - 1.5 x longer than upper tooth (nearctic species), 1.8 x longer (palearctic species). Abdomen extensively rufous to entirely black. ....5.

3. Coxae extensively to entirely black. Abdomen usually fuscous to black apically..4.

Coxae rufous. Abdomen entirely rufous. Cascade-Sierra Nevada Ranges. ....ruficincta n. sp. (p.35).

4. Propodeum with areola about as long as wide, the propodeal carinae very strong. Mesopleuron usually somewhat polished, with medium to large sized punctures. Pacific Northwest s. to Colorado........... .... vancouverensis (Harrington) (p. 31).

Propodeum with areola distinctly longer than wide, the propodeal carinae not as strong as above. Mesopleuron matte, with fine punctures.... Kentucky................................breelandi n. sp. (p. 36).

5. Ovipositor approx. 1.3 x as long as hind femur. Abdomen rufous........ Nearctic. Brevicauda Group...............brevicauda n. sp. (p. 28).

Ovipositor approx. 2.8 - 3.0 x as long as hind femur. Abdomen black.

Holarctic.............................Macdunnoughi Group (p.37).

Mandible with lower tooth approx. 1.0-1.1 x as long as upper tooth. Boreal Forest, Rocky Mts. to Mexico..macdunnoughi (Viereck) (p.38).

6. Antennal scape with apical margin strongly oblique, with inner margin 1.6 - 2.2 x as long as outer margin. Clypeus with antero-median tooth usually present. Medium to large sized species...........7.

Antennal scape with inner margin 1.3 -1.4 x as long as outer margin. Clypeus without an antero-median tooth, the margin evenly convex. Small species..10.

7. Mandible with lower tooth approx. 1.3 - 1.5 x as long as upper tooth. Ovipositor approx. 1.3 - 2.6 x as long as hind femur. Holarctic.......................................Obscuripes Group (p.11).

Ovipositor approx. 2.1 - 2.6 x as long as hind femur. Coxae of female rufous. Inner orbits of male with yellow extending posteriorly to middle of antennal socket. Face of male yellow with postero-median fuscous spot. Alaska e. to Nova Scotia, s. to N. Carolina..macrocephala (Provancher) (p.11).

Mandible with lower tooth approx. 1.8 - 2.3 x as long as upper tooth. Ovipositor approx. 2.5 - 3.5 x as long as hind femur (2.0 - 2.1 x in separata). Holarctic......... Megacephala Group (p.14).8.

8. Ovipositor approx. 2.0 - 2.1 x as long as hind femur. Head of female with reddish spot (often faint) opposite each antennal socket. Face of male yellow, with large postero-median fuscous patch. Hind tibia (both sexes) ferruginous medially, with weak basal and apical infuscation. Boreal Forest..............separata (Viereck) (p.15)

Ovipositor 2.5 - 3.5 x as long as hind femur. Head of females without reddish spots opposite antennal sockets. Face of male entirely yellow or yellow with large postero-median fuscous patch. Hind tibia mostly black...9.

9. Ovipositor approx. 2.5 - 2.8 x as long as hind femur. Coxae of female extensively to entirely black. Face of male yellow with large postero-median fuscous patch. Pacific Northwest...aldrichi (Davis)(p.14)

Ovipositor approx. 3.3 - 3.5 x as long as hind femur. Coxae of female rufous. Face of male yellow, with at most a faint, minute postero-median fuscous spot. Alaska s. to Idaho, e. to Gaspé, s. to Pennsylvania...........................alaskensis (Ashmead) (p.18)

10. Gena approx. 0.7 - 0.8 x as wide as basal width of mandible. Lower tooth of mandible approx. 1.8 - 2.0 x as long as upper tooth. Thorax somewhat dorso-ventrally flattened. Abdominal petiole short, stout. Holarctic................ Pectoralis Group (p. 24) .11.

Gena approx. 1.0 -1.1 x as wide as basal width of mandible. Lower tooth of mandible approx. 1.3 - 1.4 x as long as upper tooth. Thorax not noticeably dorso-ventrally flattened. Abdominal petiole elongate, slender. Holarctic .... Longicauda Group. 12.

11. Fore coxa pale to dark ferruginous. Propodeal carinae not unusually strong. Propodeal trough without coarse transverse wrinkling. Face of male yellow with a large postero-median fuscous patch. Thorax of male entirely black. w. N. Amer.. .genalis n. sp. (p. 25)

Fore coxa ivory. Propodeal carinae unusually strong. Propodeal trough with several coarse, transverse wrinkles. Face of male ivory. Thorax of male with ivory markings. e. N. Amer.. albicoxa n. sp. (p. 24)

12. Propodeal trough usually with distinct transverse wrinkling. Tegula often infuscated. Male with thorax entirely black. w. N. Amer.. montana n. sp. (p. 21)

Propodeal trough with granulose surface and weak transverse wrinkling usually present. Tegula white. Male with yellow markings on thorax. Holarctic (transcontinental in conifer forests in N. Amer.) .... longicauda (Horstmann) (p. 20)

Subgenus Xylophylax Kriechbaumer

The description of this subgenus is found in the paper immediately preceeding this one and is not repeated here. Salient features of the group are presented in the key above.

Obscuripes Group

Antennal scape with inner margin approx. 1.8 - 2.2 x as long as outer margin. Vertex long, with length behind lateral ocelli approx. 1.3 - 1.6 x as long as ocellar triangle. Temples, in dorsal view, strongly inflated. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small, blunt, median tooth. Mandible short, strongly tapering, with lower tooth approx. 1.3 - 1.5 x as long as upper tooth. Ovipositor approx. 1.5 - 2.3 x as long as hind femur. Clypeus sometimes with anterior margin narrowly reddish, otherwise, entirely black. Abdomen black.

This is a holarctic group comprising two palearctic species, rufocoxalis (Clément), n. comb., obscuripes (Holmgren) n. comb., and one nearctic species, macrocephala (Provancher) n. comb. What is known of the biology of this group is that they attack larvae of Cerambycidae in various conifers.

Xylophylax macrocephala (Provancher), n. comb.

Figs. 1, 15

Limneria macrocephala Provancher, 1874. Nat. Canadien, 6: 149. Female. Quebec (McGill Univ.). Examined in 1984.

Cubocephalus nigricornis Ashmead, 1902. Wash. Acad. Sci., Proc. 4: 203. Female. Preoccupied in Cubocephalus by Provancher, 1875. Alaska (USNM). Examined in 1984.
Pyracmonoides succineum Viereck, 1925. Can. Ent. 57(7): 178 (key); 57(12): 300. Male. Smith's Cove, Nova Scotia (CNC). Examined in 1984.
Pyracmonoides trochantericum Viereck, 1925. Can. Ent. 57(7): 178 (key); 57 (12): 299. Male. Teulon, Manitoba (CNC). Examined in 1984.

Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small, blunt, median tooth. Mandible with lower tooth much larger than upper tooth. Ovipositor approx. 2.0 - 2.2 x as long as hind femur. Coxae rufous. Abdomen black. Face of male yellow, with median fuscous spot and inner orbits with yellow extending a short distance behind antennal sockets.

Female. Antennal flagellum with 40-48 articles. Antennal scape with inner margin approx. 2.0-2.4 x as long as outer margin. Cmpd. eyes with inner margins weakly diverging ventrad. Face shagreened, matte, with fine punctures which are separated by distance approx. equal to dia. of single puncture. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small, blunt, median tooth. Gena approx. 1.0-1.2 x as wide as basal width of mandible. Temples in dorsal view, inflated. Mandible short, strongly tapering, with lower tooth approx. 1.4 x as long as upper tooth. Mesopleuron with speculum weakly to moderately shagreened, weakly polished, sparsely punctate. Lower 0.5 of mesopleuron shagreened, matte, with small punctures which are separated by distance 1.0-1.5 x the dia. of single puncture. Propodeum completely areolated but costula often weak. Areola longer than wide, almost always completely confluent with petiolar area. Median longitudinal carina almost always strongly angulate medially. Hind femur approx. 3.7-4.0 x as long as deep. Hind tarsal claw with moderately strong teeth which do not extend to base of tip. First Abd. segment with petiole approx. 1.1-1.2 x as long as postpetiole. Ovipositor approx. 2.1-2.6 x as long as hind femur. Fore wing approx. 5.8-8.5 mm. long.

Head, thorax,abdomen, black. Median area of mandible, tegula, whitish. Palpi fulvous. Coxae, trochanters, fore and middle femora, fore tibia, ferrugineous. Middle tibia ferrugineous, with apex sometimes infuscated. Hind femur ferrugineous, with apical dark band or, entirely infuscated. Hind tibia extensively to entirely infuscated. Hind tarsus fuscous.

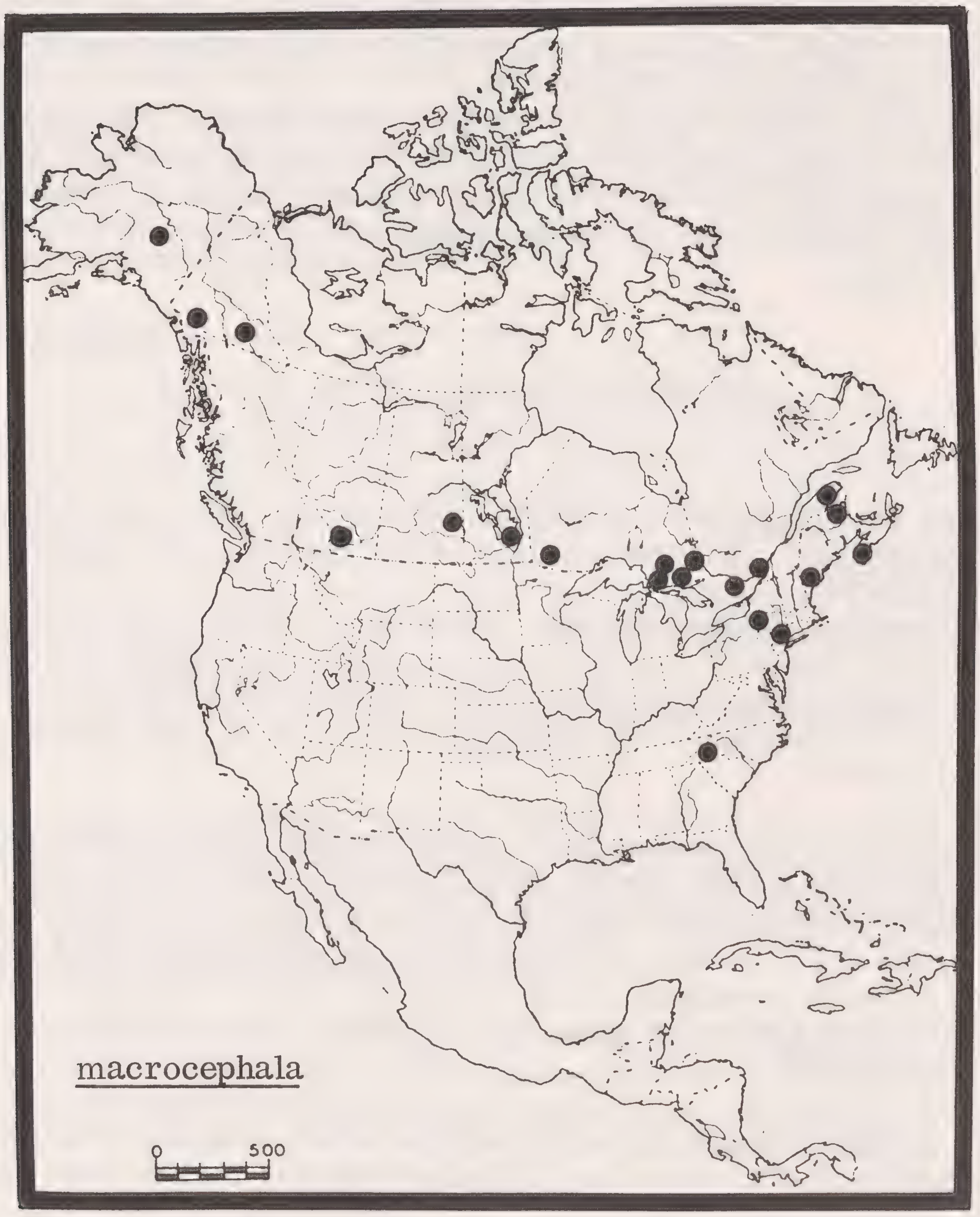
Male. Hind femur approx. 4.2-4.7 x as long as deep. Front of scape and pedicel, inner orbits, face, clypeus, lower temple, lateral lobes of prosternum, front and middle coxae, front and middle trochanters, yellow. Palpi, tegula, white. Remainder of legs coloured as in female except that front and middle legs generally paler.

Distribution. CANADA. New Brunswick: Bathhurst. Nova Scotia: Digby. Ontario: Constance Bay, Frater, Mississaugi, One-Sided Lake, Sault Ste. Marie. Quebec: Gaspé Co., Laniel. Saskatchewan: Carrot R. Yukon Territory: La Force Lake, Mile 87 (Dempster Hwy.). UNITED STATES. Alaska: Bonanza Cr., Fairbanks. Maine: Lincoln Co. New York: Green Co., Uphill Brook, Mt. Marly. North Carolina: Pisgah Ridge. ADDENDA. Alberta: Seebe

Host and Biology. The only recorded host is Tetropium cinnamopterum (Cerambycidae) in red pine. It has also been reared from an unknown host

in white spruce. Adults are active from June through August, with peak abundance in July.
Material Examined. 26 males, 50 females

Remarks. This species is very closely related to the palearctic species rufocoxalis but its closest relative in North America is alaskensis. Females of macrocephala are easily distinguished from alaskensis by the longer ovipositor. Males of macrocephala have yellow faces with a dark median spot and the faces of alaskensis are entirely yellow.



Megacephala Group

Antennal scape with inner margin approx. 1.8-2.2 x as long as outer margin (1.6-1.7 x in *megacephala*). Vertex long, with length behind lateral ocelli 1.3-1.9 x as long as ocellar triangle (0.9-1.0 in *nigrifemur*). Temples, in dorsal view, strongly inflated. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small, median tooth. Mandible short, strongly tapering, with lower tooth approx. 1.7-2.3 x as long as upper tooth. Ovipositor approx. 2.5-3.5 x as long as hind femur. Clypeus often with anterior 0.5 yellowish-red, otherwise, entirely black. Abdomen (both sexes) black.

This is a holarctic group with 5 palearctic species (*lucida*, *megacephala*, *nigrifemur*, *xoridiformis*, *xoridoides*) and 3 nearctic species (*alaskensis*, *aldrichi*, *separata*). The hosts of this group are larvae of Cerambycidae occuring in Pinaceae, except *megacephala* which is associated with Fagaceae and Juglandaceae.

Xylophylax aldrichi (Davis), n. comb.

Figs. 2, 15

Pyrachmon (!) *aldrichi* Davis, 1898 (1897). Amer. Ent. Soc. Trans. 24: 363. Male, Female. Moscow, Idaho (Academy of Nat. Sci. Phila.). Examined in 1984.

Cubocephalus atrocoxalis Ashmead, 1902. Wash. Acad. Sci. Proc. 4: 203. Female. Alaska (U.S.N.M.). New synonymy. Examined in 1984.

Helcostizidea xanthognatha Rohwer, 1914. Ent. Soc. Wash. Proc. 15 : 186. Female. Columbia Falls, Montana (U.S.N.M.). New synonymy. Examined in 1984.

Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with small, median tooth. Face with punctures separated by distance less than dia. of single puncture. Mandible with lower tooth approx. 2.0 x as long as upper tooth. Hind trochanter rufous. Hind coxae extensively to entirely black. Abdomen black. Male face yellow with black markings in form of median spot or stripe which covers less than 1/3 surface area of face.

Female. Antennal flagellum with 48-52 articles. Antennal scape with inner margin approx. 1.8-2.1 x as long as outer margin. Cmpd. eyes with inner margins weakly diverging ventrad. Face shagreened, matte, with small punctures which are separated by distance less than dia. of single puncture. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small, median tooth. Gena approx. 1.3-1.4 x as wide as basal width of mandible. Temple, in dorsal view, distinctly inflated. Mandible short, strongly tapering, with lower tooth approx. 2.0 x as long as upper tooth. Mesopleuron with speculum smooth, polished, impunctate. Lower 0.5 of mesopleuron with fine to small punctures which are separated by distance 1.0-2.0 x dia. of single puncture. Propodeum with costula present as a trace, the lateral longitudonal carina absent, the median longitudinal carina strong. Areola approx. 1.5-2.0 x as long as wide, rarely separated from petiolar area by transverse carina. Hind femur approx. 3.8-4.2 x as long as deep. Hind tarsal claw with moderately strong teeth. First abdominal segment with petiole approx. 1.1-1.2 x as long as postpetiole. Ovipositor approx. 2.6-2.8 x as long as hind femur. Fore wing approx. 6.5-9.5 mm. long.

Head, thorax, abdomen, coxae (except apices), black. Median area of mandible yellow. Palpi fulvous. Tegula white. Apices of coxae, trochanters, fore and middle femora, fore and middle tibiae, ferrugineous. Hind femur ferrugineous, with apex sometimes infuscated. Hind tibia with ground colour ferrugineous but often extensively to entirely infuscated. Hind tarsus ferrugineous to fuscous. wings weakly infuscated.

Male. Hind femur approx. 4.0-4.5 x as long as deep. Front of scape, face (except median fuscous spot), clypeus, median area of mandible, apical margins of lateral lobes of prosternum, most of fore and middle coxae, fore and middle trochanters, pale yellow (prosternum rarely entirely black). Fore and middle femora, fore and middle tibiae, yellow-ferrugineous. Hind coxa fuscous. Hind femur ferrugineous to fuscous. Hind tibia and tarsus ferrugineous with variable degree of infuscation.

Material Examined. 81 males, 39 females

Distribution. CANADA. *Alberta*: Banff; Edmonton. *British Columbia*: Canoe; Duncan Lake; Howser Ridge; Lower Post; Radium; Robson; Squamish; Trinity Valley; Vernon. UNITED STATES. *California*: Buck's Lake, Plumas Co.; Camp Connell; Carrville; Dardanelle; Echo Lake, Eldorado Co.; Giant Forest, Tulare Co.; Lake Tahoe; Pinecrest; Vade; Yosemite Pk. *Colorado*: Burke. *Idaho*: Krassel, Valley Co.; McCalf, Brundage Mt. *Montana*: Columbia Falls; Lake Roman. *Oregon*: Caves; Clover Cr., Grant Co.; Mt. Hood; Mt. Jefferson; Ochoco Cr. *Washington*: Easton.

This species is confined to the pacific northwest in the Cascade-Sierra Nevada ranges and the Rocky Mts. from Alaska to Colorado.

Host and Biology. The species attacks cerambycid larvae in firs and larch. Host records include *Tetropium velutinum* and *Orthotomicus lasiocarpa*. It has been found in association with *Larix occidentalis*, *Pseudotsuga menziesii*, *P. taxifolia*, *Abies concolor*, and *A. shastensis*. Adults are active from June to September with a peak abundance in July.

Remarks. This species appears to be closely related to *separata* but is typically larger, has a longer ovipositor and the face of the female is entirely black. See further remarks following the description of *separata* below.

Xylophylax separata (Viereck), n. comb.

Figs.3,16

Pyracmonoides separatum Viereck, 1925. Can. Ent. 57(7): 178 (key); 57(12): 298. Male and Female. Nordegg, Alberta (CNC). Examined in 1984.

Clypeus with antero-lateral corners not extending beyond tentorial pits, its margin with a small, median tooth. Temples, in dorsal view, weakly inflated. Mandible with lower tooth approx. 2.3 x as long as upper tooth. Thorax weakly flattened dorso-ventrally. Petiolar segment of abdomen approx. 1.1-

1.2 x as long as postpetiole. Female with faint reddish spot beside each antennal socket (outside). Face of male yellow, with a median, elongate-triangular fuscous patch, the yellow extending along the orbits a short distance behind the antennal sockets.

Female. Antennal flagellum with 36-39 articles. Antennal scape with inner margin approx. 1.8-2.0 x as long as outer margin. Inner margins of cmpd. eyes weakly divergent ventrad. Face shagreened, matte, with fine punctures which are separated by distance 1.5-2.0 x the dia. of single puncture. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin with a small, medain tooth. Gena approx. as wide as basal width of mandible. Temples, in dorsal view, weakly inflated. Mandible short, strongly tapering, with lower tooth approx. 2.3 x as long as upper tooth. Thorax, in lateral view, weakly dorso-ventrally flattened. Mesopleuron with speculum smooth, polished, impunctate. Lower 0.5 of mesopleuron shagreened, weakly polished, with fine punctures which are separated by distance 1.0-2.5 x the dia. of single puncture. Propodeum with areola distinctly longer than wide, weakly to strongly separated from petiolar area by a transverse carina. Costula and lateral longitudinal carinae absent. Hind femur approx. 3.9-4.2 x as long as deep. Hind tarsal claw with strong teeth which do not extend to base of tip. First abdominal segment with petiole approx. 1.1-1.2 x as long as postpetiole. Ovipositor approx. 1.7-1.8 x as long as hind femur. Fore wing approx. 4.8-7.3 mm. long. Hind wing with nervellus weakly intercepted at basal 0.2-0.4

Head, thorax, abdomen, coxae, black (most specimens have a faint reddish spot between eye and antennal socket). Tegula, palpi, whitish. Trochanters, femora, ferrugineous, the hind femur sometimes infuscated. Fore tibia, ferrugineous; middle tibia ferrugineous to weakly fuscous; hind tibia and hind tarsus weakly to strongly infuscated.

Male. Hind femur approx. 4.4-4.6 x as long as deep. Propodeum with areola usually approx. 2.0 x longer than wide, bounded by weak carinae. Front of scape and pedicel yellow. Face with yellow on inner orbits extending a short distance behind antennal sockets, with median elongate-triangular fuscous patch, the remainder yellow. Tentorial pits fuscous. Clypeus yellow. Tegula white. Fore and middle coxae yellow apically, the remainder black. Hind coxa entirely black. Fore and middle trochanters entirely yellow. Hind trochanter with basal segment ferrugineous to fuscous, the apical segment ferrugineous. Fore and middle femora ferrugineous. Hind femur ferrugineous, with an apico-dorsal fuscous patch.

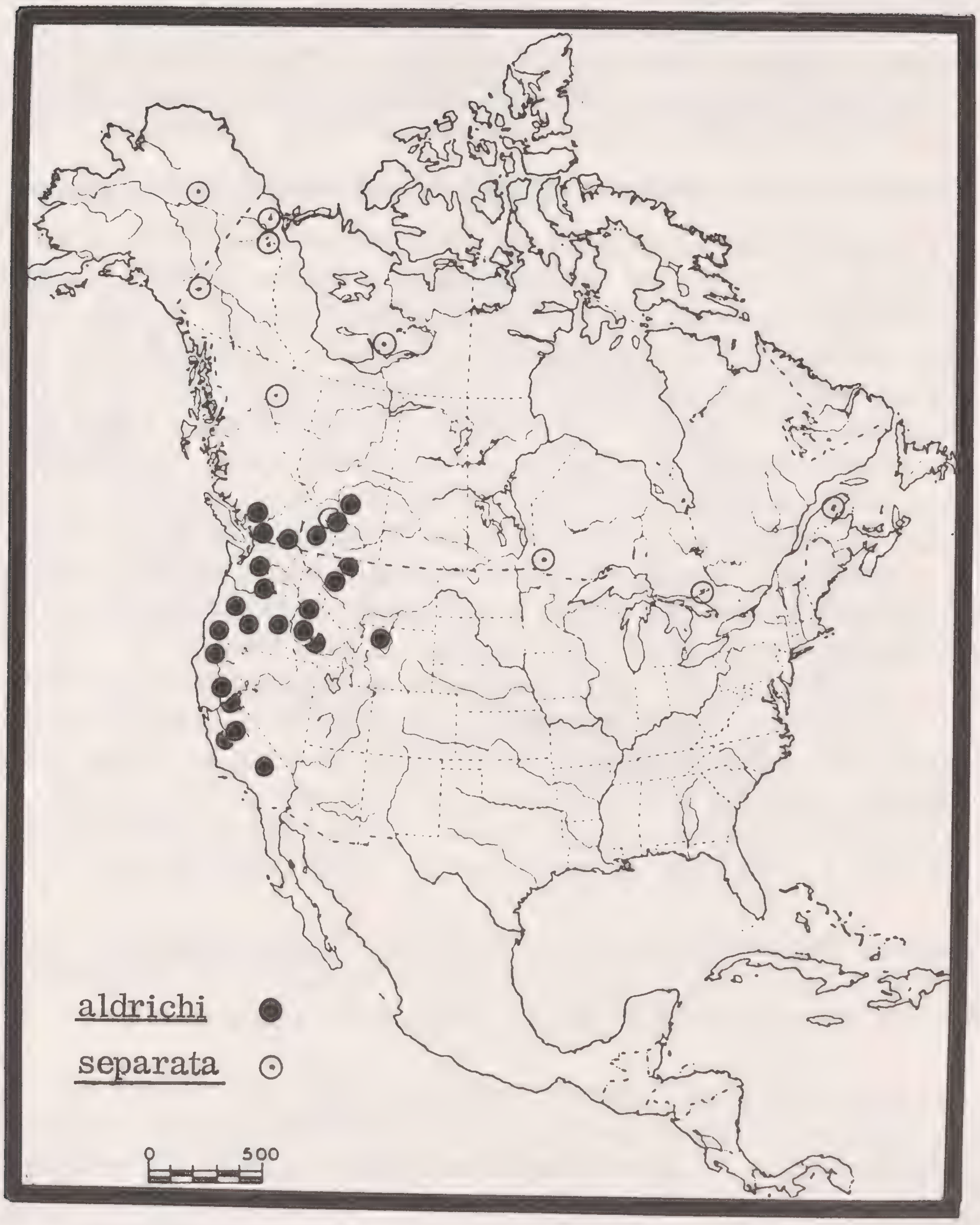
Material Examined. 21 males, 7 females

Distribution. CANADA. *Alberta:* Nordegg. *British Columbia*: Stone Mt. *Northwest Territories*: Ft. McPherson; Reindeer Depot, Mackenzie Delta; Yellowknife. *Ontario*: Frater. *Quebec*: Indian House Lk.; Knob Lk. *Saskatchewan*: Carrot R. *Yukon*: Fort Cudahy. UNITED STATES. *Alaska*: Fort Yukon.

This species is confined to the Boreal Forest region of Alaska and Canada.

Host and Biology. There are no rearing records for this species but it has been associated with white spruce in Saskatchewan. Adults are active from June through August, with a peak abundance in July.

Remarks. This species appears to be closely related to *aldrichi*. Females of *separata* are easily distinguished from those of *aldrichi* by the much shorter ovipositor and by the faint reddish spots present beside each antennal socket (sometimes beside each mandible as well). Males of *separata* are difficult to separate from *aldrichi* but typical specimens of the former are smaller, the areola is relatively longer and bordered by weaker carinae, the hind tibia is usually much paler. Some males can be separated by distribution as those of *aldrichi* occur west of the rockies while those of *separata* continue on through the boreal forest.



Xylophylax alaskensis (Ashmead), n. comb.

Figs. 4, 18

Cubocephalus alaskensis Ashmead, 1902. Wash. Acad. Sci., Proc. 4: 203. Female. Alaska (U.S.N.M.). Examined in 1984.

Pyracmonoides lipoparium Viereck, 1925. Can. Ent. 57(7): 128 (key); 57(12): 299. Female. Sudbury, Ont. (CNC). New synonymy. Examined in 1984.

Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small, median tooth. Mandible with lower tooth approx. 2.0 x as long as upper tooth. Coxae rufous. Ovipositor approx. 2.8 x as long as hind femur. Face of male entirely yellow, the inner orbits with yellow not extending behind antennal sockets. Abdomen (both sexes) black.

Female. Antennal flagellum with 38-45 articles. Antennal scape with inner margin approx. 1.7-1.9 x as long as outer margin. Inner margins of eyes weakly divergent ventrad. Face strongly shagreened, matte, with medium sized punctures which are separated by distance less than dia. of single puncture. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin usually with a small, median tooth. Gena approx. as wide as basal width of mandible. Temples, in dorsal view, distinctly inflated. Mandible short, strongly tapering, with lower tooth approx. 2.0 x as long as upper tooth. Mesopleuron with speculum weakly to strongly shagreened, impunctate. Lower 0.5 of mesopleuron strongly shagreened, matte, with small to medium sized punctures which are separated by distance 1.0-2.0 x dia. of single puncture. Propodeum with areola usually about 2.0 x as long as wide, sometimes a little longer, often partially separated from petiolar area by traces of transverse carina laterally. Petiolar area usually broadly horseshoe shaped. Hind femur approx. 4.3-4.7 x as long as deep. Hind tarsal claw with moderately strong teeth which do not extend to base of tip. First abdominal segment with petiole approx. 1.0-1.1 x as long as postpetiole. Ovipositor approx. 3.3-3.5 x as long as hind femur. Fore wing approx. 5.0-8.5 mm. long.

Females indistinquishable from those of macrocephala except as follows: apical 0.5 of clypeus ferrugineous; genae, adjacent to mandibles, ferrugineous; hind femur with apex usually more extensively infuscated.

Male. Front of scape and pedicel yellow. Head with yellow on inner orbits extending back to anterior ocellus. Face entirely yellow or with a very small fuscous dot medially. Lower temple and clypeus entirely yellow. Prosternum yellow in front of each coxa, the remainder of thorax black. Fore and middle coxae, fore and middle trochanters, extreme bases of femora, yellow, remainder of femora pale ferrugineous. Fore and middle tibiae pale ferrugineous. Hind femur ferrugineous beyond base, with apical infuscation. Hind tibia dark fuscous basally, externally, and apically, dark ferrugineous interno-medially. Hind tarsus fuscous.

Material Examined. 59 males, 37 females

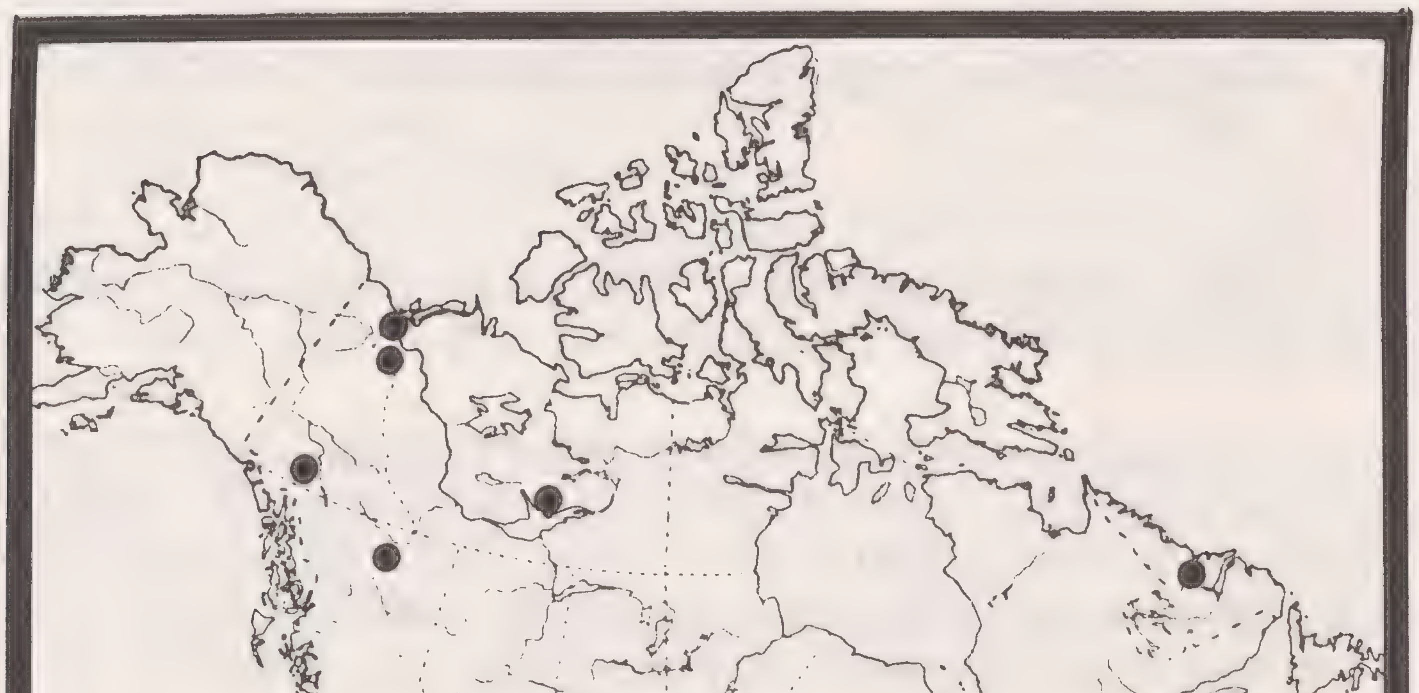
Distribution. CANADA. British Columbia: Hixon; Lower Post; Paint Potts, 55 mi. N. Radium; Robson. Labrador: Hopedale. Northwest Territories:

Ft. McPherson; Reindeer Depot, Mackenzie Delta; Yellowknife. Ontario: Frater; Mississagi; Stittsville; Westree. Quebec: Gaspé; Joliette; Laniel. Yukon: Hootalingua. UNITED STATES. Alaska: Kowak R., Kotzebue Sound. Idaho: Leesburg. New York: Syracuse. Pennsylvania: Charter Oak.

This species occurs in conifer forests from Alaska south to Idaho, east to New Brunswick (probably to Maritimes), south to Pennsylvania.

Host and Biology. The known hosts are larvae of Tetropium (Cerambycidae) occuring in Pinaceae (T. parvulum , T. velutinum). Adults are active from June through August but are most abundant in July.

Remarks. The closest relative of this species appears to xoridiformis from the palearctic region. In North America it most closely resembles macrocephala (see remarks following macrocephala). This species is moderately common in collections but is often misidentified as macrocephala .



Longicauda Group

Antennal scape with inner margin approx. 1.3-1.4 x as long as outer margin. Vertex long, with length behind lateral ocelli 0.8-1.4 x as long as ocellar triangle. Temple long, weakly inflated. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin evenly convex and lacking a median tooth. Mandible short, strongly tapering, with lower tooth approx. 1.3-1.4 x as long as upper tooth. Abdomen with petiolar seg. moderately elongate. Ovipositor approx. 2.8-3.1 x as long as hind femur. Abdomen black.

This is a holarctic group with one holarctic species, *longicauda* (Horstmann) and one nearctic species, *montana* n. sp. The biology of this group is unknown. but is associated with conifers.

Xylophylax longicauda (Horstmann), n. comb.

Figs. 5, 19

Rhimphoctona longicauda Horstmann, 1980. Nach bayer Ent. 29(2): 22. Female. Oberbayern Ellmau (Munich).

Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin evenly convex, without a median tooth. Mandible with lower tooth slightly longer than upper tooth. Propodeal trough granulose, with weak transverse wrinkling or sometimes wrinkling absent. Tegula white. Abdomen black. Male with face entirely yellow and mesopleuron with yellow markings.

Female. Antennal flagellum with 27-29 articles. Antennal scape with inner margin approx. 1.3-1.4 x as long as outer margin. Cmpd. eyes with inner margins weakly diverging ventrad. Face shagreened, matte, with small punctures which are separated by distance less than or equal to dia. of single puncture. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin evenly convex and lacking a median tooth. Gena approx. 1.1-1.2 x as wide as basal width of mandible. Temples, in dorsal view, moderately inflated. Mandible short, strongly tapering, with lower tooth slightly longer than upper tooth. Mesopleuron with speculum polished, smooth, impunctate. Lower 0.5 of mesopleuron shagreened, matte, with fine punctures which are separated by distance 2.0-3.0 x the dia. of single puncture. Propodeum completely areolated, with areola usually confluent with petiolar area. Propodeal trough strongly matte, usually distinctly granulose, usually with weak transverse wrinkling. Hind femur approx. 4.3-4.7 x as long as deep. Hind tarsal claw with moderately strong teeth which often extend to base of tip. First abdominal segment with petiole approx. 1.2-1.3 x as long as postpetiole. Ovipositor approx. 2.8-3.2 x as long as hind femur. Fore wing approx. 4.4-4.7 mm. long.

Head, thorax, abdomen, black. Median area of mandible yellow. Palpi, tegula, fuscous. Coxae fuscous to black. Trochanters with basal segments fuscous, apical segments ferrugineous. Fore and middle femora, fore and middle tibiae, ferrugineous. Hind femur ferrugineous, with apex often infuscated. Hind tibia, hind tarsus, fuscous. Wings weakly infuscated.

Male. Hind femur approx. 4.5-5.0 x as long as deep. Front of scape, pedicel, inner orbits, face, clypeus, lower 0.7 of temple, median area of mandible, palpi, fore and middle trochanters, pale yellow. Baso-lateral corners of pronotum, tegula, sub-tegular ridge, lower 0.5 of mesopleuron, mesosternum, fore and middle coxae, ivory to pale yellow. Hind coxa yellow, with dorsal surface partially to entirely fuscous. Fore and middle femora, fore and middle tibiae, pale yellow-ferrugineous. Hind femur ferrugineous with apex sometimes infuscated. Hind tibia with basal 0.6-0.7 ferrugineous, apical 0.3-0.4 fuscous. Hind tarsus ferrugineous to fuscous.

In some males the temple is entirely yellow, the pronotum entirely yellow laterally and in melanic specimens the mesosternum can be extensively marked with fuscous.

Material Examined. 22 males, 40 females.

Distribution. CANADA. *Alberta:* Banff; Calgary; Edmonton; Villenuve. *British Columbia*: Hixon; Lac La Hache; Stanley; Stone Mt. Pk.; Squamish. *Labrador*: locality ?. *New Brunswick:* Fredricton. *Newfoundland*: Raleigh; South Branch. *Ontario*: Aylmer West; Ottawa; Westree. *Quebec*: Cascapedia R.; Gaspé Co.; Old Chelsea; Laniel; Kam. co., Park Reserve; Stoneham. *Yukon:* Dawson. UNITED STATES. *Colorado:* Steamboat Spr. *Idaho:* Moscow. *Maine*: Lincoln Co. *Michigan*: Iron River. *New Hampshire:* Lancaster; Mastyard; Pinkham Notch. *New York*: Bemus Pt.; Cranberry Lake. *Oregon*: Grant Co.; Mt. Jefferson.

Host and Biology. This species has been observed ovipositing in timber infested with *Scolytus ventralis* in Idaho. This could be misleading as small species of Cerambycidae could also have been present. The species has been associated with several conifer species, including spruce, fir and lodgepole pine. Adults are active from May through August with peak activity in July.

Remarks. This is a holarctic species, as noted above. Specimens from North America are typically smaller than palearctic specimens and usually have the hind tibia more infuscated. The closest relative in North America is *montana* which has more extensive wrinkling on the propodeal trough and generally much stronger propodeal carinae. Males of *montana* have faces which are yellow with dark markings while the faces of male *longicauda* are entirely yellow. The species *montana* is restricted to western North America while *longicauda* has a widespread trans-continental distribution.

Xylophylax montana, new sp.

Figs. 6, 20

Similar to *longicauda* except that propodeal carinae stronger, propodeal trough with distinct transverse wrinkling, tegula white to brown, faces of males yellow with black markings and male mesopleuron entirely black, confined to western North America.

HOLOTYPE. Female. Antennal flagellum with 30 articles. Antennal scape with inner margin approx. 1.4 x as long as outer margin. Cmpd. eyes with inner margins weakly diverging ventrad. Face strongly shagreened, matte, with small punctures which are separated by distance less than dia. of single puncture. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin evenly convex and lacking a median tooth. Gena approx. 1.1 x as wide as basal width of mandible. Temples, in dorsal view, inflated. Mandible short, strongly tapering, with lower tooth slightly longer than upper tooth. Mesopleuron with speculum weakly shagreened, polished, impunctate. Lower 0.5 of mesopleuron with small punctures which are separated by distance 1.0-2.0 x dia. of single puncture. Propodeum completely areolated, the carinae strong. Areola slightly longer than wide, with coarse wrinkling laterally, completely confluent with petiolar area. Petiolar area with coarse transverse wrinkling. Median longitudinal carina strongly angulate medially. Hind femur approx. 4.2 x as long as deep. Hind tarsal claw with moderately strong teeth which extend to base of tip. First Abdominal segment with petiole approx. 1.2 x as long as postpetiole. Ovipositor approx. 2.6 x as long as hind femur. Fore wing approx. 6.0 mm. long.

Head,thorax, abdomen, coxae, black. Palpi, tegula, fulvous. Basal segments of trochanters fuscous, apical segments ferrugineous. Femora, fore tibia, ferrugineous, the middle tibia ferrugineous with apex weakly infuscated. Hind tibia dark fuscous basally, apically and internally, the externo-median surface dark ferrugineous. Hind tarsus fuscous. Wings very weakly infuscated.

Range and Variation. Antennal flagellum with 29-30 articles. Antennal scape with inner margin 1.3-1.4 x as long as outer margin. Clypeus with anterior margin sometimes very weakly produced medially. Areola sometimes weakly separated from petiolar area by weak, incomplete transverse carina. Hind femur approx. 4.1-4.4 x as long as deep. Abdominal petiole approx. 1.2-1.3 x as long as postpetiole. Ovipositor approx. 2.6-2.8 x as long as hind femur. Fore wing 4.5-6.5 mm. long. Tegula white to btown. Palpi fulvous to fuscous. Apical segments of trochanters ferrugineous to fuscous. Hind femur sometimes infuscated apically.

Male. Hind femur approx. 4.3-4.8 x as long as deep. Front of scape yellow. Face yellow with 3 vertical fuscous bars medially. Clypeus yellow medially, fuscous along anterior and posterior margins. Palpi pale fulvous. Tegula ivory. Thorax entirely black. Fore coxa, most of middle coxa, yellow. Hind coxa black. Fore and middle trochanters, yellow, hind trochanter with basal segment fuscous, apical segment yellow with some infuscation. Fore and middle femora yellow ferrugineous, hind femur ferrugineous, with infuscated areas apically and ventrally. Hind tibia paler than in female, usually with a weak banding pattern.

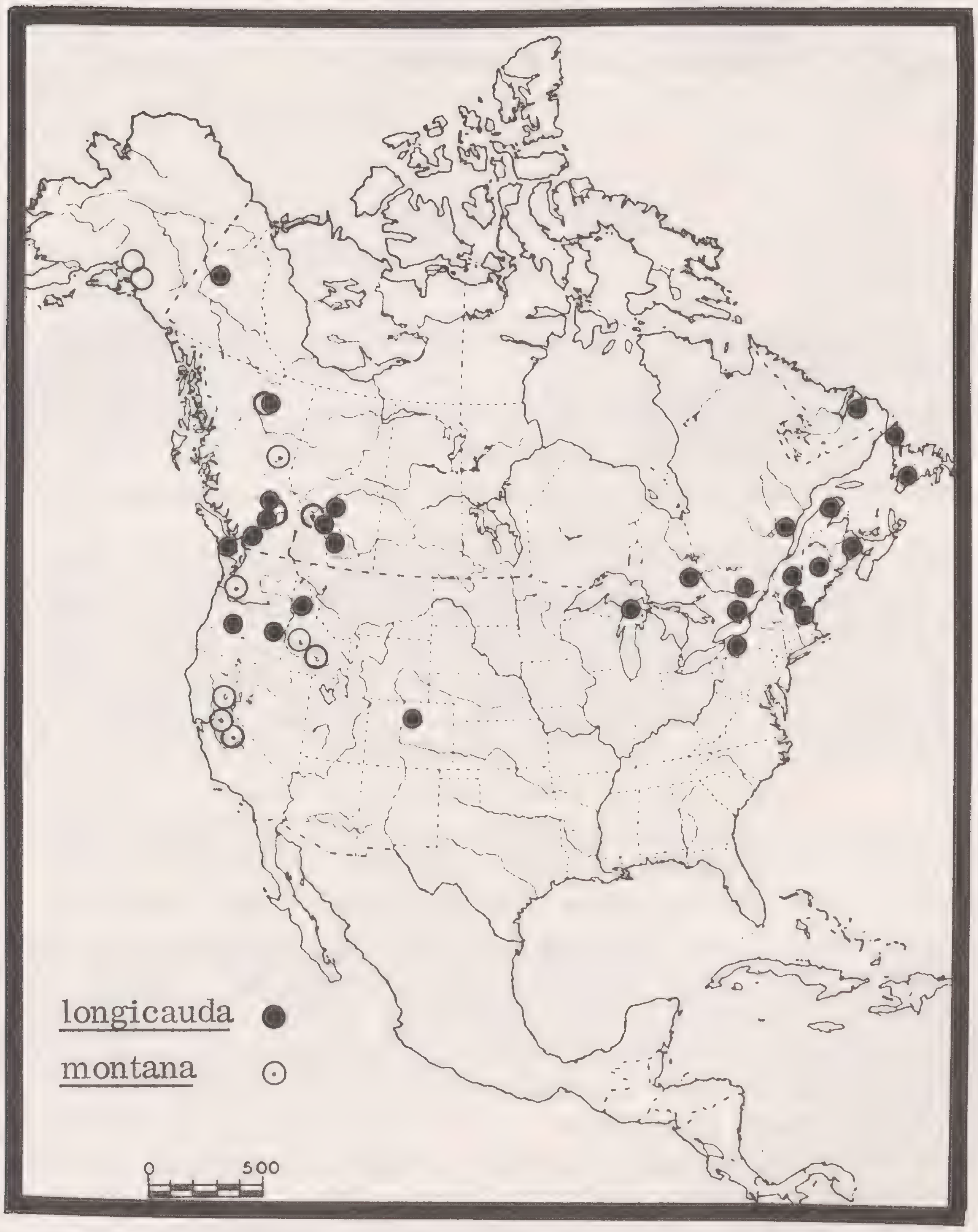
Holotype. Female. nr. Glacier Pt., Yosemite Pk., California, July 19, 1948, H. and M. Townes. Deposited in Townes collection, Gainesville, Fla. Paratypes. CANADA. British Columbia: Hixon, 20-VI-1965 (1 female), E.D.A. Dyer (CNC); Stone Mt. Pk., 3500-3800', VII-19-26-1973 (2 males, 2 females) H. & M. Townes (HMT); Summit Lake, 4600', 16-VII- 1959 (1 female), R. E., Leech (CNC). Alberta: Banff, 6-VIII-1924 (1female), E. Hearle (CNC) and 4700', Aug. 16, 1962 (1 female), K. C. Hermann (CNC). UNITED STATES. Alaska: Anchorage, VI-30-VII-12-1976 (1 male, 3 females) Peter A. Rush (HMT); McKinley Hotel, VI - 25-1954 (1 female), W.C.F. (HMT). California: Cisco, July 31, 1948, (1 female), H.M.G.D.&J Townes (HMt); Echo Lk., Eldorado Co., VII-1-1954 (1female), W.W. Middlekauff (UCB); nr. Glacier Pt., Yosemite Pk., July 16-18-1948 (63 males, 14 females), H.M.G.D. & J. Townes (HMT); May Lk., 10, 500', Yosemite Pk., July 27, 1948 (4 males, 1 female), H.M.G.D. & J. Townes (HMT); Sagehen Cr., VII-10-12-1978 (1 male, 2 females), R. M. Bohart (HMT); Snow Flat, Yosemite Pk., 8700', July 26-27, 1948 (4 males, 1 female), H.M.G.D. & J. Townes (HMT). Idaho: Lowman, Aug. 9, 1978 (1 female), H. & M. Townes (HMT); nr. Stanley, Aug. 3, 1978 (1 male), H. &. M. Townes (HMT). Washington: Mt.Ranier, 2900', July 12, 1940 (1 female), H. & M. Townes (HMT).

Distribution. Rocky Mts., Aka. to Idaho and Sierra-Nevada range, Wash. to Calif.

Etymology. The species epithet is in reference to the montane habitats this species seems to prefer.

Host and Biology. There are no rearing records for this species. Adults are active from June through August with a peak of activity in July.

Remarks. This species is very closely related to longicauda. See remarks under longicauda .



Pectoralis Group

Antennal scape with inner margin approx. 1.3-1.4 x as long as outer margin. Vertex long, with length behind lateral ocelli approx. 0.9-1.4 x as long as ocellar triangle. Temple not or weakly inflated. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin evenly convex and lacking a median tooth. Gena narrow, approx. 0.7 as wide as basal width of mandible. Mandible short, strongly tapering, with lower tooth 1.9-2.1 x as long as upper tooth. Thorax, in lateral view, somewhat dorsoventrally flattened. Abdomen with petiolar segment short, stout. Ovipositor approx. 3.0 x as long as hind femur. Abdomen (both sexes) black.

This is a holarctic group with one palearctic species (*pectoralis*) and 2 nearctic species (*albicoxa*, *genalis*). Hosts and host-plant associations are known only for *albicoxa* (Curculionidae and Cerambycidae in hardwoods) and *pectoralis* (Cerambycidae in Pinaceae).

Xylophylax albicoxa, new sp.

Figs.7, 22

Face strongly convex. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin not produced medially. Propodeal carinae unusually strong and propodeal trough with very coarse transverse wrinkling. Coxae white to yellow. Abdomen black. Face of male white, mesopleuron with white areas, and lower division of metapleuron white.

HOLOTYPE. Female. Antennal flagellum with 29 articles. Antennal scape with inner margin approx. 1.4 x as long as outer margin. Inner margins of cmpd. eyes very weakly diverging ventrad. Face strongly convex, strongly shagreened, matte, with minute punctures which are separated by distance approx. equal to dia. of single puncture. Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior margin not produced medially. Gena approx. 0.7 x as wide as basal width of mandible. Temples, in dorsal view, not inflated, moderately sloping inwardly. Mandible with lower tooth approx. 2.0 x as long as upper tooth. Thorax, in profile, moderately dorsoventrally flattened. Mesopleuron with speculum finely wrinkled, polished, impunctate. Lower 0.5 of mesopleuron strongly shagreened, matte, with small punctures which are separated by distance less than or equal to dia. of single puncture. Propodeum with unusually strong carinae. Areola distinctly longer than wide and completely confluent with petiolar area. Propodeal trough with approx. 11 very coarse transverse wrinkles. Hind femur approx. 4.4 x as long as deep. Hind tarsal claw with strong teeth which extend to base of tip. First abdominal segment with petiole approx. as long as postpetiole. Ovipositor approx. 3.0 x as long as hind femur. Fore wing approx. 4.0 mm. long. Hind wing with nervellus weakly intercepted at basal 0.3.

Head, thorax, abdomen, black. Mandible, tegula, white. Fore coxa white tinged with ferrugineous. Middle and hind coxae, femora, tibiae (except extreme apex of hind), ferrugineous. Extreme apex of hind tibia, hind basitarsus, fuscous. Wings hyaline.

Range and Variation. Antennal flagellum with 29-32 articles. Antennal scape with inner margin approx. 1.3-1.4 x as long as outer margin. Areola sometimes separated from petiolar area by transverse carina. Hind femur approx. 4.1-4.4 x as long as deep. Fore wing approx. 4.0-5.0 mm. long. Hind wing with nervellus intercepted near basal 0.3-0.4. Fore coxa pale ferrugineous to ivory. Fore trochanter pale ferrugineous to ivory.

Male. Generally much paler than female. Black. Scape, pedicel, inner orbits, temple, face, clypeus, mandible, tegula, pronotum, most of mesopleuron, metasternum, lower division of metapleuron, coxae, trochanters, fore and middle femora, tibiae (except apex of hind which is weakly infuscated), hind tarsal segments (except apices which are weakly infuscated), ivory. Hind femur ivory to pale ferrugineous.

Holotype. Female. Gulfshores, Alabama, April 25, 1968, H. & M. Townes. Deposited in Townes collection, Gainesville, Florida.
Paratypes. *Alabama*: one male with same data as holotype (HMT). *Connecticut*: South Woodstock, ex *Magdalis olyra* on hickory, date ? (1 female), coll. ? (USNM). *Georgia*: St. Catherines Is., Liberty Co., April 24-28-1972, (1 male), Thompson and Picchi (AMNH). *Kansas*: Lawrence, Douglas Co., V-3-1981 (1 female), D. B. Wahl (DWC). *Louisiana*: Mansura, IV-13-1909 (1 female), W. D. Pierce (USNM). *Michigan*: Ann Arbor, VI-16-1980 (1 female), H. & M. Townes (HMT). *North Carolina*: Cedar Mt., 29-IV-1913 (3 females), ex *Tillamorpha geminata*, F. C. Craighead (USNM); Durham, III-15-1943 (1 male) on *Juglans nigra*, Wm. Haliburton, J. A. Beal (USNM). *Tennessee*: Bolivar, Hardeman Co., Apr. 2-6-1974, ex *Cercis canadensis* (6 males, 2 females), R. D. Ward (HMT). Unknown locality: 1 male, 1 female, no further data (USNM).

Host and Biology. This species has been reared from *Magdalis olyra* (Curculionidae) in hickory and *Tillomorpha* (= *Tilloclytus*) *geminatus* (Cerambycidae). Other plant associations include *Juglans nigra* (black walnut) and *Cercis canadensis* (redbud). It appears that this species attacks, in general, small sub-cortical coleopterous larvae in a variety of hardwoods. Adults are active in late spring in the northern part of its range, and early spring in the southern portions.

Etymology. The species is named for the ivory colouration of the coxae of the males.

Remarks. The small size, convex face,sculpturing of the propodeum, extensive ivory colouration of males, and association with hardwoods will easily distinguish this species from all other nearctic *Xylophylax*. Its closest nearctic relative appears to be *genalis* (see remarks following *genalis*) .

Xylophylax genalis, new sp.

Figs. 8, 21

Clypeus with antero-lateral corners not extending beyond tentorial pits, its anterior not produced medially. Temples, in dorsal view, moderately sloping inwardly. Mandible with lower tooth approx. 2.0 x as long as upper tooth. Coxae of female ferrugineous. Abdomen black. Abdominal petiole approx. as long as postpetiole. Face of male white to yellow, with a median infuscated spot. Male thorax entirely black.

HOLOTYPE. Female. Antennal flagellum with 29 articles. Antennal scape with inner margin approx. 1.3 x as long as outer margin. Inner margins of cmpd. eyes parallel ventrad. Face strongly shagreened, matte, with fine punctures which are separated by distance approx. equal to dia. of single puncture. Face, in lateral profile, moderately convex. Clypeus with anterolateral corners not extending beyond tentorial pits, its anterior margin not produced medially. Gena approx. 0.7 x as wide as basal width of mandible. Temples, in dorsal view, moderately sloping inwardly. Mandible with lower tooth approx. 2.0 x as long as upper tooth. Thorax, in profile, weakly dorsoventrally flattened. Mesopleuron with speculum smooth, polished, impunctate. Lower 0.5 of mesopleuron moderately shagreened, polished, with small punctures which are separated by distance less than or equal to dia. of single puncture. Propodeum with areola distinctly longer than wide, weakly separated by weak transverse carina from petiolar area. Petiolar area with numerous moderately coarse irregular wrinkles. Hind femur approx. 4.1 x as long as deep. Hind tarsal claw with weak teeth which do not extend to base of tip. First abdominal segment with petiole approx. as long as postpetiole. Ovipositor approx. 3.0 x as long as hind femur. Fore wing approx. 5.1 mm. long. Hind wing with nervellus weakly intercepted near basal 0.3.

Head, thorax, abdomen, black. Median area of mandible, palpi, tegula, white tinged with ferrugineous. Fore and middle coxae, apex of hind coxa, trochanters, femora (except apico-dorsal patch of hind), fore and middle tibiae, ferrugineous. Basal 0.7 of hind coxa, apico-dorsal patch of hind femur, hind tibia, fuscous. Wings hyaline, with darkly pigmented veins.

Range and Variation. Antennal flagellum with 29-31 articles. Antennal scape with inner margin approx. 1.3-1.4 x as long as outer margin. Lower 0.5 of mesopleuron polished to matte. Hind femur approx. 3.8-4.3 x as long as deep. Fore wing approx. 4.0-5.5 mm. long. Middle and hind coxae ferrugineous to fuscous. Hind tibia ferrugineous with apex fuscous to entirely fuscous.

Male. Vertex, median spot on face, thorax, abdomen, black. Fore coxa ivory to pale ferrugineous. Middle coxa pale to dark ferrugineous. Hind coxa ferrugineous to fuscous. Legs coloured as in female.

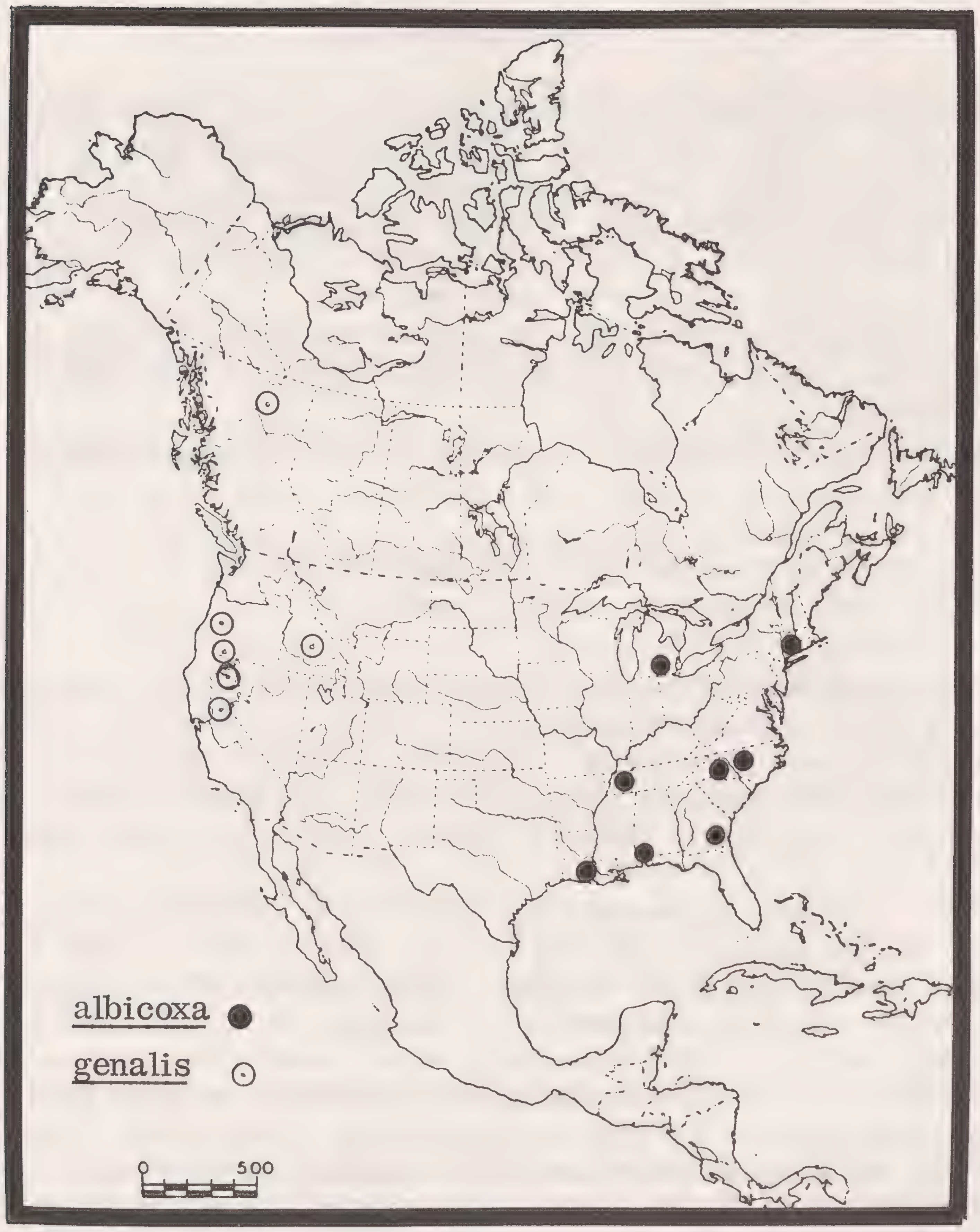
Holotype. Female. Lake Wohlford, California, IV-27-1974, H. & M. Townes. Deposited in Townes collection, Gainesville, Florida.
Paratypes. CANADA. British Columbia: Stone Mt. Pk., 3800'. VIII-22-1973 (1 female), H. &M. Townes (HMT). UNITED STATES. California: Alpine Cr., Tahoe, VII-5-1915 (1 female), E. P. Van Duzee (UCB); Lake Wohlford, IV-22-30-1974 (31 males, 19 females), H. & M. Townes (HMT). Idaho: Stanley, Aug. 7, 1978 (1 female), H. & M. Townes (HMT). Oregon: Corvallis, June 4, 1978 (1 male), H. & M. Townes (HMT); Pinehurst, VI-21-1978 (1 female), H. & M. Townes (HMT).

This species is distributed throughout the Cascade and Rocky Mt. ranges.

Host and Biology. There are no rearing records or plant associations for this species. Adults are active from early spring to mid-summer.

Remarks. The somewhat dorso-ventrally flattened thorax, moderately oblique apical margin of scape, narrow gena, and short, stout petiolar segment with petiole as long as postpetiole demonstrate a close relationship to albicoxa.

The weaker propodeal carinae, darker colouration of the females and entirely black thorax of the males will distinguish this species from albicoxa.



Subgenus Euraspidion Sanborne

The description of this subgenus can be found in Sanborne, 1986b, immediately preceeding this paper. Salient features of the group are presented earlier in this paper in the identification key.

Brevicauda Group

Antennal scape with inner margin approx. 1.5-1.6 x as long as outer margin. Vertex short, with length behind lateral ocelli approx. 0.5-0.7 x as long as ocellar triangle. Temple moderately long, not inflated, strongly sloping inwardly in dorsal view. Clypeus with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Mandible long, weakly tapering, with lower tooth approx. 1.4-1.5 x as long as upper tooth. First abdominal (petiolar) segment moderately elongate. Ovipositor short, approx. 1.3 x as long as hind femur. Abdomen (both sexes) partially to entriely rufous.

This is a nearctic group with a single species, brevicauda .

Xylophylax brevicauda, new sp.

Figs. 12, 26

Clypeus with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Mandible with lower tooth approx. 1.4-1.5 x as long as upper tooth. Temples, in dorsal view, strongly sloping inwardly. Ovipositor approx. 1.3 x as long as hind femur. Abdomen (both sexes) partially to entirely rufous. Face of male yellow with black markings.

HOLOTYPE. Female. Antennal flagellum with 30 articles. Antennal scape with inner margin approx. 1.6 x as long as outer margin. Inner margins of cmpd. eyes weakly diverging ventrad. Face shagreened, matte, with medium sized punctures which are separated by distance less than dia. of single puncture. Clypeus polished, with numerous small punctures, with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Gena approx. as wide as basal width of mandible. Temples, in dorsal view, strongly sloping inwardly. Mandible long, weakly tapering, with lower tooth approx. 1.5 x as long as upper tooth. Mesopleuron with speculum smooth, polished, impunctate. Lower 0.5 of mesopleuron weakly shagreened, more or less polished, with medium sized punctures which are separated by distance less than or equal to dia. of single puncture. Propodeum with areola weakly separated from petiolar area by a transverse carina, the propodeal trough rather broad and with strong carinae. Hind femur approx. 3.8 x as long as deep. Hind tarsal claw with strong teeth which extend to base of tip. First abdominal segment with petiole approx. 1.3 x as long as postpetiole. Ovipositor approx. 1.3 x as long as hind femur. Fore wing approx. 7.7 mm. long. Hind wing with nervellus distinctly intercepted near middle.

Head, thorax, coxae, abdominal petiole, basal 0.6 of postpetiole, black. Tegula, basal segments of all trochanters, apical 0.4 of middle and hind tibiae, fuscous. Femora, basal 0.6 of hind tibia, apical 0.4 of postpetiole, abdominal tergites 2 to apex, rufous. Fore tibia yellow-ferrugineous. Hind tarsal segments 1-4 yellow, 5th segment fuscous. Fore wings with yellow tinge, particularly toward bases.

Range and Variation. Antennal flagellum with 27-30 articles. Antennal scape with inner margin 1.5-1.6 x as long as outer margin. Propodeum with areola often strongly separated from petiolar area by transverse carina. Hind femur approx. 3.5-4.5 x as long as deep. Ovipositor approx. 1.3-1.5 x as long as hind femur. Fore wing 6.1-7.3 mm. long. Postpetiole sometimes entirely rufous. Coxae varies from fuscous to black. Basal segments of trochanters vary from ferrugineous to fuscous.

Male. Hind femur approx. 4.0-4.5 x as long as deep. Colour as in female except as follows: front of scape and pedicel, inner orbits, lower temple, ventral surfaces of fore and middle coxae, fore trochanter, yellow; face entirely yellow or sometimes with median fuscous spot; clypeus yellow marked with fuscous basally and medially or entirely yellow; hind femur often with infuscated areas.

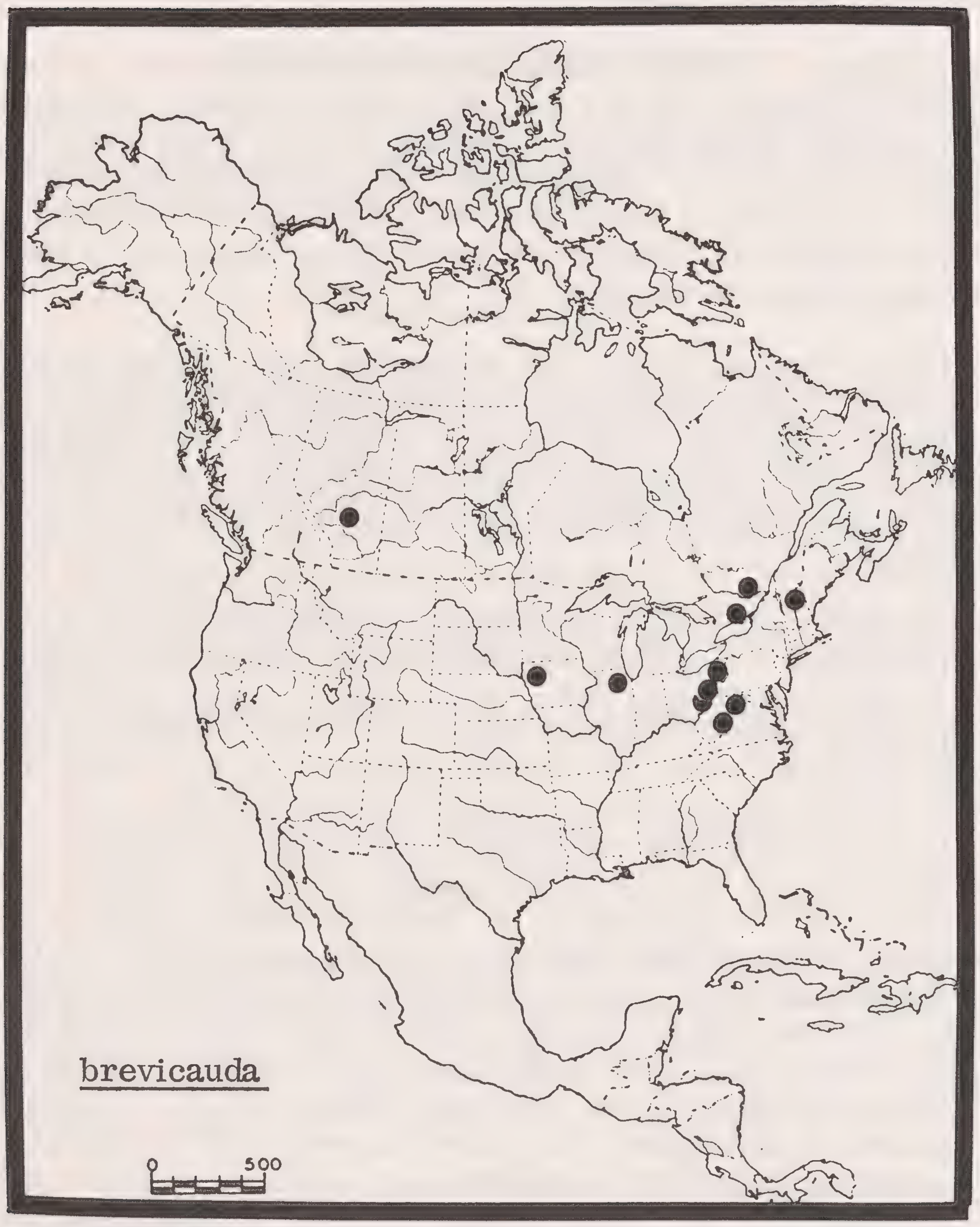
Holotype. Female. King Mt., Old Chelsea, Quebec, VI-22-26-1977, P.M. Sanborne. Deposited in Canadian National Insect Collection, Ottawa, Ont. Paratypes. CANADA. Alberta: Bilby, 25-VI-1924 (1 female), G. Salt (USNM). Ontario: Havelock, May 27, 1977 (2 males), J. W. McCreadie (PMS). Quebec: Old Chelsea, King Mt., 1150', 21-VI-1965 (1 male), J. R. Vockeroth (CNC). UNITED STATES. Illinois: Glen Ellyn, 30-V-1949 (1 male), A. L. Melander (UCR). Iowa: Sioux City, date? (1 female), C. N. Ainslie (USNM). New Hampshire: Pinkham Notch, June 25, 1938 (1 male), H. & M. Townes (HMT). Ohio: Ashtabula Co., V-26-?, (1 male) C. H. Kennedy (HMT); Hocking Co., May, 192? (2 females) (PMS &USNM) and June 192? (1 male) (HMT), (1 female) (USNM); Jefferson St. Pk., June 8, 1952 (1 female), C. Dasch (CDC); Oak Pk., 5 mi. W. New Concord, May 27, 1968 (2 females), C. Dasch (CDC). West Virginia: Bowden, VI-6-7-1980 (1 female), C. Dasch (CDC); Cranberry Gls, 2-VI-1955 (1 female), H. V. Weems (HMT).

This species is distributed from Alberta south to Iowa, east to New Hampshire, and south to West Virginia.

Host and Biology. There are no rearing records for this species. Adults are active during May and June.

Etymology. The species epithet is in reference to the short ovipositor.

Remarks. The broad clypeus and red abdomen indicates a relationship with the Vancouverensis Group. The strongly sloping temples and unusually short ovipositor will easily distinguish this species from all other nearctic Xylophylax and are my reasons for placing it in its own species group. Though widely distributed, it is very rare in collections.



Vancouverensis Group

Antennal scape with inner margin approx. 1.5-1.6 x as long as outer margin. Vertex moderately long, with length behind lateral ocelli approx. 0.8-1.1 x as long as ocellar triangle. Temples, in dorsal view, distinctly inflated. Clypeus with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Mandible long, weakly tapering, with lower tooth approx. 1.8-2.0 x as long as upper tooth. Ovipositor approx. 2.8 x as long as hind femur. Face of females entirely black. Abdomen (both sexes) partially to entirely rufous.

This is a nearctic group comprising 3 species (breelandi, ruficincta, vancouverensis). The group is associated with conifers and although there are no rearing records, the hosts are presumed to be wood-boring larvae of Cerambycidae.

Xylophylax vancouverensis (Harrington), n. comb.

Figs. 10, 24

Pyracmon vancouverensis Harrington, 1894. Can. Ent. 26: 246. Female.
Vancouver, British Columbia (CNC). Examined in 1984.

Clypeus with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Temples distinctly inflated in dorsal view. Mandible with lower tooth approx. 1.8-2.0 x as long as upper tooth. Mesoplueron polished, with medium to large sized punctures. Propodeum with areola approx. as long as wide. Coxae extensively to entirely black. Abdomen extensively rufous. Face of male entirely yellow (Rocky Mts.), with black markings (Cascade-Sierra Nevada Ranges)

Female. Antennal flagellum with 29-33 articles. Antennal scape with inner margin approx. 1.5-1.6 x as long as outer margin. Cmpd. eyes with inner margins weakly diverging ventrad. Face shagreened, matte, rather flat, with medium sized punctures which are separated by distance less than dia. of single puncture. Clypeus with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Gena approx. 0.8 x as wide as basal width of mandible. Temples distinctly inflated in dorsal view. Mandible long, weakly tapering, with lower tooth approx. 1.8-2.0 x as long as upper tooth. Mesopleuron with speculum smooth to weakly wrinkled, polished, impunctate. Lower 0.5 of mesopleuron with medium sized punctures which are separated by distance less than or equal to dia. of single puncture. Propodeum completely areolated, the carinae moderately strong to strong. Areola approx. as long as wide, sometimes separated from petiolar area by transverse carina. Hind femur approx. 4.0-4.6 x as long as deep. Hind tarsal claw with weak teeth which do not extend to base of tip. First abdominal segment with petiole approx. 1.2-1.3 x as long as postpetiole. Ovipositor approx. 2.8 x as long as hind femur. Fore wing approx. 5.5-8.0 mm. long.

Head, thorax, abdominal petiole, black. Postpetiole partially rufous to entirely black. Abdominal tergites 2 to apex partially to entirely rufous. Tegula, basal segments of trochanters, apical 0.3-1.0 of hind tibia, fuscous. Femora, fore and middle tibiae, ferrugineous. Wings very lightly infuscated.

Male. Hind femur approx. 4.4-5.5 x as long as deep. Face entirely yellow to yellow with black markings. Thorax entirely black to black with yellow markings. Remaining colouration similar to female.

There are three subspecies which can be identified by the following key.

1. Petiolar segment of abdomen bicoloured. Second abdominal tergite entirely rufous. Hind femur approx. 4.0-4.5 x as long as deep in females, 4.5-5.0 x in males. Face of males entirely yellow. Thorax of males with yellow markings. Rocky Mts. e. to Saskatchewan, s. to Idaho. ....v. vancouverensis (Harrington)

Petiolar segment of abdomen entirely black or with extreme apical margin of petiole reddish. Second abdominal tergite fuscous to black basally, rufous apically. Face of male yellow with fuscous or black markings. Thorax of males entirely black....................2.

2. Occuring in southern Rocky Mts. Hind femur approx. 4.0-4.5 x as long as deep in females, 4.5-5.0 x in males (estimated as male unknown). Hind tibia extensively to entirely darkly infuscated...*v. tibialis*, new subspecies.

Occuring in Cascade-Sierra Nevada ranges. Hind femur approx. 4.5-4.8 x as long as deep in females, 5.0-5.5 x in males. Hind tibia ferrugineous, with apical 0.2-0.3 weakly infuscated...*v. maculosa*, new subspecies.

Xylophylax vancouverensis vancouverensis (Harrington)

Pyracmon vancouverensis Harrington, 1894. Can. Ent. 26: 246. Female. Vancouver, B. C. (CNC).

Female. Hind femur approx. 4.0-4.5 x as long as deep. Abdomen with petiole and basal 0.5-0.7 of postpetiole black. Second abdominal tergite entirely rufous. Hind tibia with apical 0.3 weakly infuscated.

Male. Hind femur approx. 4.4-5.0 x as long as deep. Face and clypeus entirely yellow. Pronotum with latero-median yellow spot. Mesopleuron with subtegular ridge and antero-ventral areas yellow. Mesosternum, fore and middle coxae, yellow. Hind tibia coloured as female.

Distribution. CANADA. *Alberta*: Banff; Drumheller. *British Columbia*: Adam's Lk.; Clinton; Kamloops; Keremeos; Osoyoos; Richter Pass Rd., 7 mi. W. Osoyoos. *Saskatchewan*; Elbow. UNITED STATES. *California*: Carrville, Trinity Co.; Sequoia Nt. Pk. *Colorado*: Boulder. *Idaho*: Bear Valley, Valley Co.; Bear Pass Cr., Butte Co.; Idaho City. *Washington*: Blue Mts.

This subspecies is distributed in the Rocky Mts. from British Columbia to Colorado, east to Saskatchewan, with a few specimens taken in the Cascade-Sierra Nevada ranges.

Host and Biology. Unknown. Adults are active from late May to late July.

Remarks. The bicoloured petiolar segment of both sexes, entirely yellow face of male, and yellow markings of male thorax will easily distinguish this subspecies. It could be argued that this is a good species as its range extends into the ranges of the other two subspecies. It is my belief that this represents a recent expansion of the range of *v. vancouverensis*. Tests for hybridization will have to be performed with specimens taken from contact zones.

Xylophylax vancouverensis tibialis, new subspecies

Female. Similar to *v. maculosa* except that hind femur distinctly more swollen and hind tibia extensively to entirely dark fuscous.

Male. Unknown but presumed to be similar to *v. maculosa* except that hind femur distinctly more swollen and hind tibia extensively to entirely dark fuscous.

Holotype. Female. Boulder, Colorado, June 18, 1933, M. T. James. Deposited in Townes collection, Gainsville, Florida.
Paratypes. Colorado: Boulder, 5800', Flagstaff Canyon, June 10, 1961 (2 females), coll. ? (CNC); Cottonwood Pass, Eagle Co., 8200', VII-2-1961 (1 female) R. J. Joe (HMT); Unknown locality, date ? (1 female) C. F. Baker (USNM). New Mexico: Ute Park, Cimarron Canyon, on pastinaca flowers, July 1-4, 1960 (1 female), Burks and Kinzer (HMT).

Distribution. Southern Rocky Mts. (Colorado, New Mexico).

Host and Biology. There are no rearing records for this subspecies. Adults are active in June and July.

Etymology. The subspecies name draws attention to the hind tibia which is extensively to entirely fuscous.

Remarks. The extensively dark fuscous coloured hind tibia distinguishes this subspecies from the other two.

Xylophylax vancouverensis maculosa, new subspecies

Female. Hind femur approx. 4.6-5.0 x as long as deep. Abdomen with petiolar segment entirely black or, at most, with extreme apical margin reddish. Second abdominal tergite with basal 0.4-0.5 fuscous to black. Hind tibia with apical 0.3 weakly fuscous.

Male. Hind femur approx. 5.0-5.5 x as long as deep. Face with large median triangular fuscous patch. Clypeus yellow with antero-median fuscous spot, the extreme anterior margin fuscous. Thorax entirely black. Fore and middle coxae with apico-ventral surfaces yellow. Hind tibia and abdomen coloured as in female.

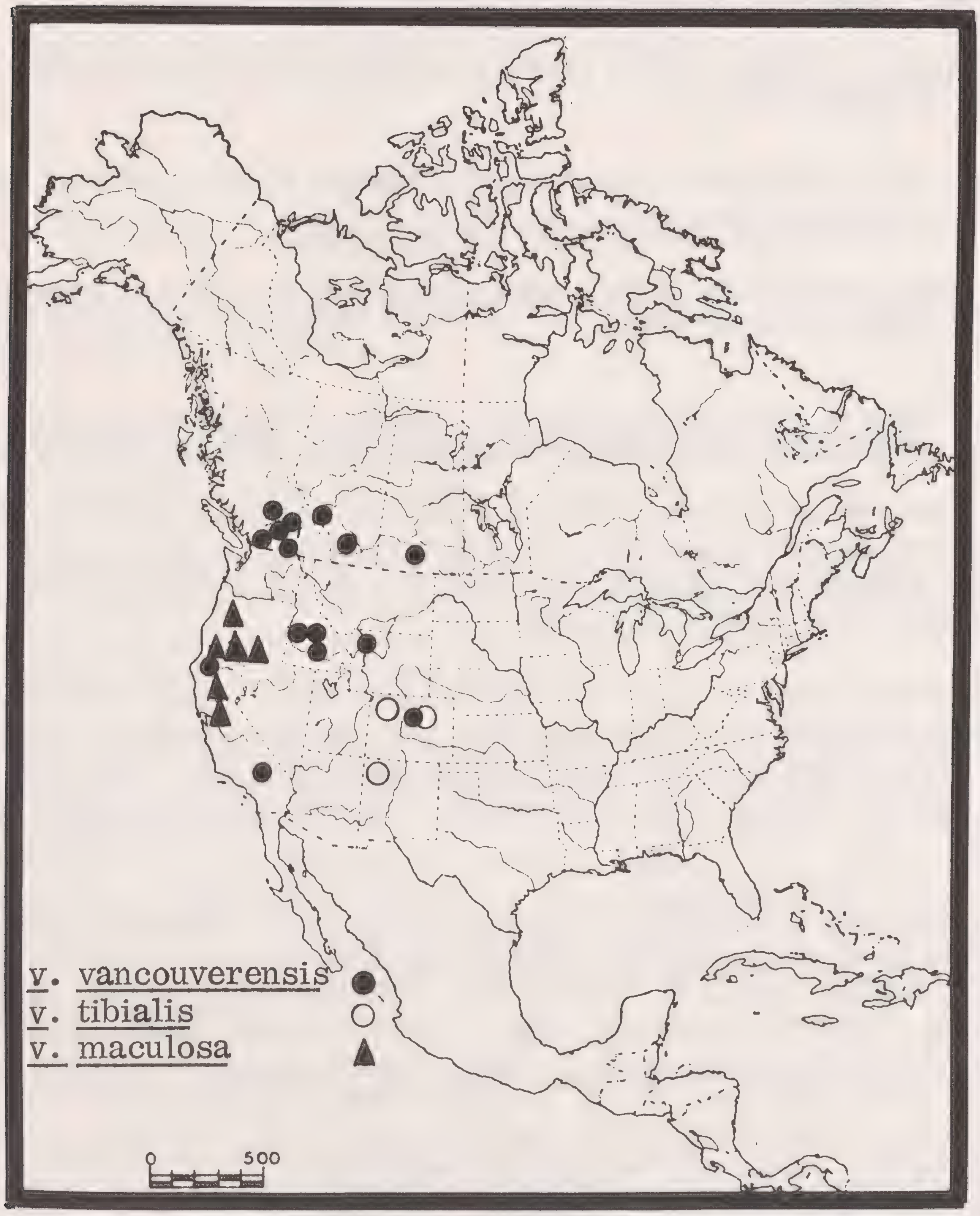
Holotype. Female. Corvallis, Oregon, May 18, 1978, H. & M. Townes. Deposited in Townes collection, Gainsville, Florida.
Paratypes. Oregon: 4 mi. s. Canyonville, Douglas Co., May 4, 1936 (1 female) G. Ferguson (USNM); Cornelius, May 6, 1936 (1 male), Gray and Schuh (OSU); Corvallis, 5-8-98 (1 male), coll. ? (USNM) and (1 male, 1 female), coll ? (OSU) and May 8, 1925 (1 female), H. A. Scullen (USNM) and May 10, 1925 (1 male) H. A. Scullen (USNM) and May 8, 1932 (1 male), coll. ? (USNM); Dixie Cr., May 30, 1937 (1 female), G. Thompson (OSU) and May 14, 1938 (1 male), Gray, Schuh (OSU); Hyatt Reservoir, VI-19-1978 (1 female), H. & M. Townes (HMT); Seneca, July 11, 1978 (1 male), H. & M. Townes (HMT); Sulphur Springs, 10 mi. n. Corvallis, May 16, 1952 (1 male), Vincent Roth (OSU) and 5 mi. n. Corvallis May 14, 1963 (1 male), David R. Smith (OSU).

Distribution. Known only from Oregon

Host and Biology. There are no rearing records for this species but it has been associated with douglas fir. Adults are active from May through July.

Etymology. The subspecies name refers to the large triangular fuscous patch on the face of the male.

Remarks. This subspecies is easily distinguishable from the nominal subspecies by the black petiolar segment and partially black 2nd abdominal tergite, and by the colouration of the male. It is distinguished from v. tibialis by its distribution and much paler hind tibia.



Xylophylax ruficincta, new sp.

Figs. 9, 23

Clypeus with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Mandible with lower tooth approx. 1.8-2.0 x as long as upper tooth. Temples ditinctly inflated in dorsal view. Coxae rufous. Abdomen entirely rufous. Face of male entirely yellow.

HOLOTYPE. Female. Antennal flagellum with 35 articles . Antennal scape with inner margin approx. 1.6 x as long as outer margin. Inner margins of cmpd. eyes weakly diverging ventrad. Face shagreened, flat, with medium sized punctures which are separated by distance less than dia. of single puncture. Clypeus weakly shagreened, polished, with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Gena approx. 0.8 x as wide as basal width of mandible. Temples distinctly inflated in dorsal view. Mandible long, weakly tapering, with lower tooth approx. 1.8-2.0 x as long as upper tooth. Mesopleuron with speculum polished, impunctate. Lower 0.5 of mesopleuron densely, coarsely punctate. Propodeum with carinae very strong, the areola completely confluent with petiolar area. Hind femur approx. 4.7x as long as deep. Hind tarsal claw with weak teeth which extend to base of tip. First abdominal segment with petiole approx. 1.5 x as long as postpetiole. Ovipositor approx. 2.8 x as long as hind femur. Fore wing approx. 9.0 mm. long.

Head, thorax, apex of mandible, baso-dorsal patch of petiole, black. Tegula fuscous. Coxae, trochanters, femora, abdomen, rufous. Hind tibia fuscous basally, grading to black apically. Hind tibial spurs, hind basitarsus, yellow. Wing veins very darkly pigmented.

Range and Variation. Antennal flagellum with 30-35 articles. Antennal scape with inner margin approx. 1.5-1.6 x as long as outer margin. Hind femur approx. 4.6-4.7 x as long as deep. Petiole approx. 1.5-1.6 x as long as postpetiole. Fore wing approx. 6.5-9.0 mm. long. Hind tibia with basal 0.5 rufous to fuscous. Apical tergites of abdomen sometimes infuscated.

Male. Hind femur approx. 4.9-5.0 x as long as deep. Colour as in female except as follows: front of scape, inner orbits, face, lower temple, clypeus, fore coxa, fore trochanter, ventral surface of middle coxa, much of middle trochanter, yellow.

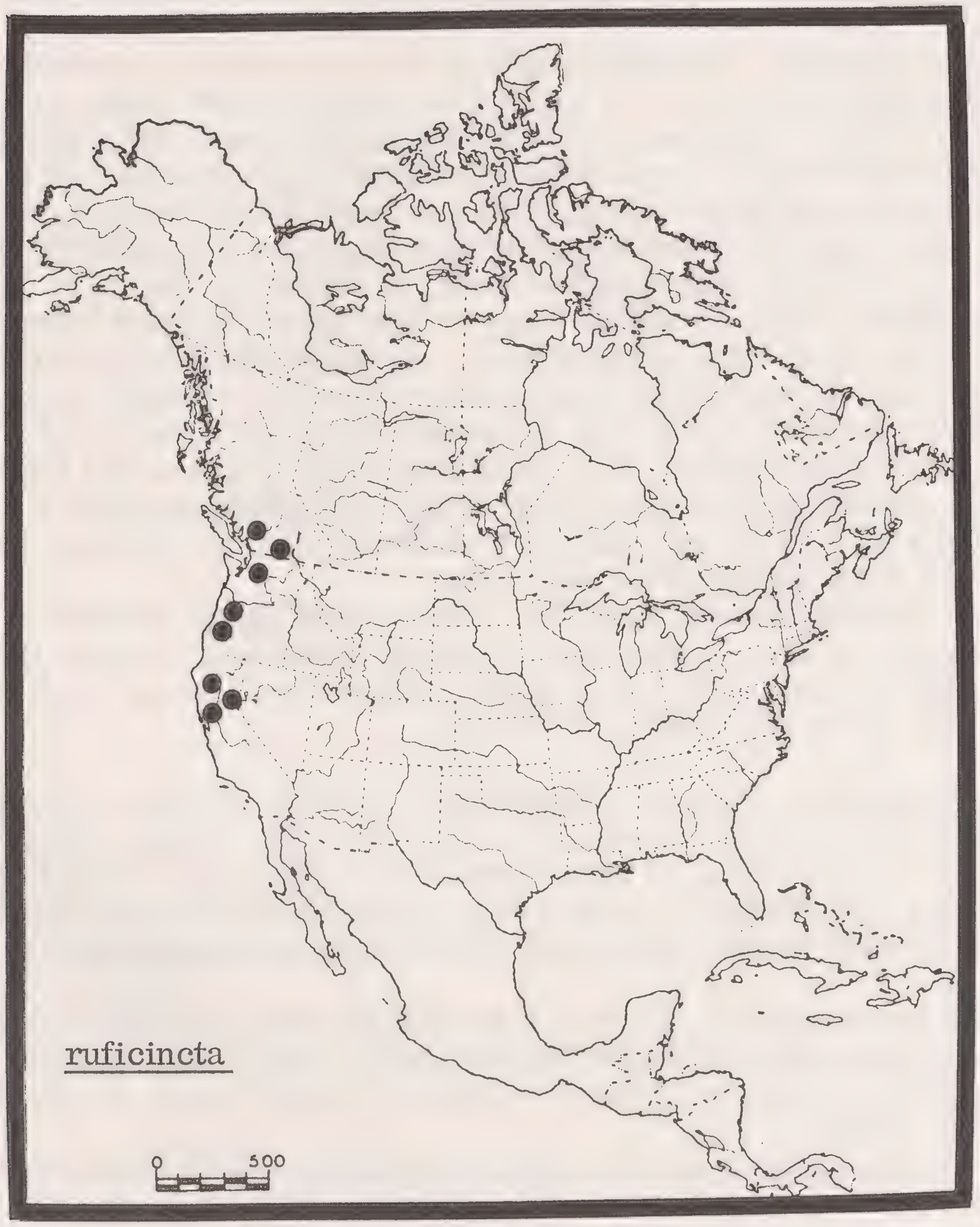
Holotype. Female. Oregon, Corvallis, June 21, 1978, H. & M. Townes. Deposited in Townes collection, Gainsville, Florida.
Paratypes. CANADA. British Columbia: Royal Oak, 24-VII-1917 (1 male), W. Downes (CNC). UNITED STATES. California: Blocksburg, 6-6-1935 (1 male), E. W. Baker (USNM); Summit Mt. Canyon, Solano Co., V-30-1960 (1 male), A. S. Menke (UCR). Oregon: Corvallis, 28, June, 1936 (1 female), G. Ferguson (HMT) and July 15, 1978 (1 female), H. & M. Townes (HMT); Mt. Hood, VII-26-1978, 3500' (1 male), H. &M. Townes (HMT). Washington: Signal Pk., July 4, 1950 (1 male), A. R. Rolfs (USNM).

Distribution. This species is confined to the Cascades-Sierra Nevada ranges.

Host and Biology. There are no rearing records for this species but it has been associated with douglas fir.

Etymology. The species epithet refers to the red abdomen of both sexes.

Remarks. The entirely rufous coxae distinguishes this species from its close relative, *vancouverensis*.



Xylophylax breelandi, new sp.

Figs. 11, 25

Clypeus with antero-lateral corners extending beyond tentorial pits. Mandible with lower tooth approx. 2.0 x as long as upper tooth. Temples inflated in dorsal view. Thorax weakly dorso-ventrally flattened. Mesoplueron matte, with fine punctures. Propodeum with areola longer than wide.

Coxae extensively black. Abdomen extensively rufous.

HOLOTYPE. Female. Antennal flagellum with 31 articles. Antennal scape with inner margin approx. 1.5 x as long as outer margin. Inner margins of cmpd. eyes very weakly diverging ventrad. Face shagreened, matte, with fine punctures which are separated by distance approx. equal to dia. of single puncture. Clypeus shagreened, matte, with antero-lateral corners extending beyond tentorial pits. Gena approx. 0.8 x as wide as basal width of mandible. Temples distinctly inflated in dorsal view. Mandible long, weakly tapering, with lower tooth approx. 2.0 x as long as upper tooth. Mesopleuron with speculum finely wrinkled, weakly polished, impunctate. Lower 0.5 of mesopleuron strongly shagreened, matte, with small punctures which are separated by distance approx. equal to 1.0-1.5 x the dia. of single puncture. Propodeum with areola distinctly longer than wide, the areola separated from petiolar area by a weak transverse carina. Lateral longitudinal carina present only as trace. Hind femur approx. 4.3 x as long as deep. Hind tarsal claw with strong teeth which extend to base of tip. First abdominal segment with petiole approx. 1.5 x as long as postpetiole. Ovipositor approx. 2.8 x as long as hind femur. Fore wing approx. 5.3 mm. Hind wing with nervellus weakly intercepted at basal o.3

Head, thorax, coxae, black. Tegula, basal segments of trochanters, hind tibia, petiole, basal 0.5 of postpetiole, apical bands of tergites 4 to 6, fuscous. Apical segments of fore and middle trochanters, fore and middle tibiae, fore and middle femora, testaceous. Hind femur ferrugineous. Hind tarsus white, with apices of segments infuscated.

Range and Variation. Known only from holotype.

Male. Unknown

Holotype. Female. Golden Pond Kentucky, V-26-VI-10-1964, S. G. Breeland. Deposited in Townes collection, Gainesville, Florida.

Etymology. This species is named in honour of its collector, S. G. Breeland.

Remarks. This species is closely related to vancouverensis , differing primarily in features of the propodeum (areola longer than wide, absence of lateral longitudinal carina) and in the much smaller punctures of the head and thorax.

Macdunnoughi Group

Antennal scape with inner margin approx. 1.7-1.9 x as long as outer margin. Vertex short, with length behind lateral ocelli approx. 0.5-0.8 x as long as ocellar triangle. Temples sloping inwardly in dorsal view. Clypeus with anter-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Mandible long, weakly tapering, with lower tooth approx. 1.1-1.8 x as long asupper tooth. Ovipositor approx. 2.8-3.0 x as long as hind femur. Face of females entirely black or with white spot under each antennal socket. Face and clypeus of males (males known for macdunnoughi only) entirely yellow. Thorax of nearctic males black with yellow markings. Abdomen of both sexes entirely black.

This is a holarctic group with one nearctic and one palearctic species

(macdunnoughi, bimaculata, respectively)

Xylophylax macdunnoughi (Viereck), n. comb.

Figs. 13, 14

Pyracmon macdunnoughi Viereck, 1925; 1926. Can. Ent. 57(7): 180 (key); 58 (1): 5. Female. Nordegg, Alberta (CNC). Examined in 1984.
Campoplex (Ecphora) alternatus Viereck, 1925;1926. Can. Ent. 57(12): 202 (key); 58( ): 282. Female. Seven Isles, Quebec (CNC). Examined in 1984.

Clypeus with antero-lateral corners extending beyond tentorial pits. Mandible with lower tooth approx. 1.1 x as long as upper tooth. Temples moderately sloping inwardly in dorsal view. Abdomen entirely black in both sexes. Face of male entirely yellow. Thorax of male black with yellow markings.

Female. Antennal scape with inner margin approx. 1.6-1.8 x as long as outer margin. Antenna with 30-32 articles. Cmpd. eyes with inner margins moderately diverging ventrad. Face shagreened, matte, with medium sized punctures which are separated by distance less than dia. of single puncture. Clypeus polished, with antero-lateral corners extending beyond tentorial pits, its anterior margin not produced medially. Gena approx. 1.0-1.2 x as wide as basal width of mandible. Temples moderately sloping inwardly in dorsal view. Mandible long weakly tapering, with lower tooth approx. 1.1 x as long as upper tooth. Mesopleuron with speculum shagreened, polished, impunctate. Lower 0.5 of mesopleuron shagreened, matte, with medium sized punctures which are separated by distance less than dia. of single puncture. Propodeal carinae very strong. Areola approx. as wide as long, rarely separated from petiolar area by transverse carina. Hind femur approx. 4.3-4.8 x as long as deep. Hind tarsal claw with weak teeth which do not extend to base of tip. First abdominal segment with petiole approx. 1.4-1.5 x as long as postpetiole. Ovipositor approx. 2.1-2.8 x as long as hind femur (very rarely less than 2.5x). Fore wing approx. 6.0-7.5 mm. long. Hind wing with nervellus intercepted near basal 0.3.

Head, thorax, abdomen, black. Palpi, tegula, fuscous. Coxae, basal segments of trochanters, fuscous to black. Apical segments of trochanters, fore and middle femora, fore tibia, ferrugineous. Hind femur ferrugineous, with apical infuscation. Middle tibia ferrugineous, with apical infuscation. Hind tibia and tarsus fuscous.

Male. Black. Scape, pedicel, face, lower temple, palpi, tegula, subtegular ridge, anterior margin of mesopleuron, anterior margin of mesosternum, fore and middle coxae, ventral surface of hind coxa, fore and middle trochanters, apical segment of hind trochanter, yellow. Legs paler than in female with hind tibia exhibiting a weak banding pattern, the basal and apical bands fuscous, median band ferrugineous. In some males the mesosternum is entirely yellow.

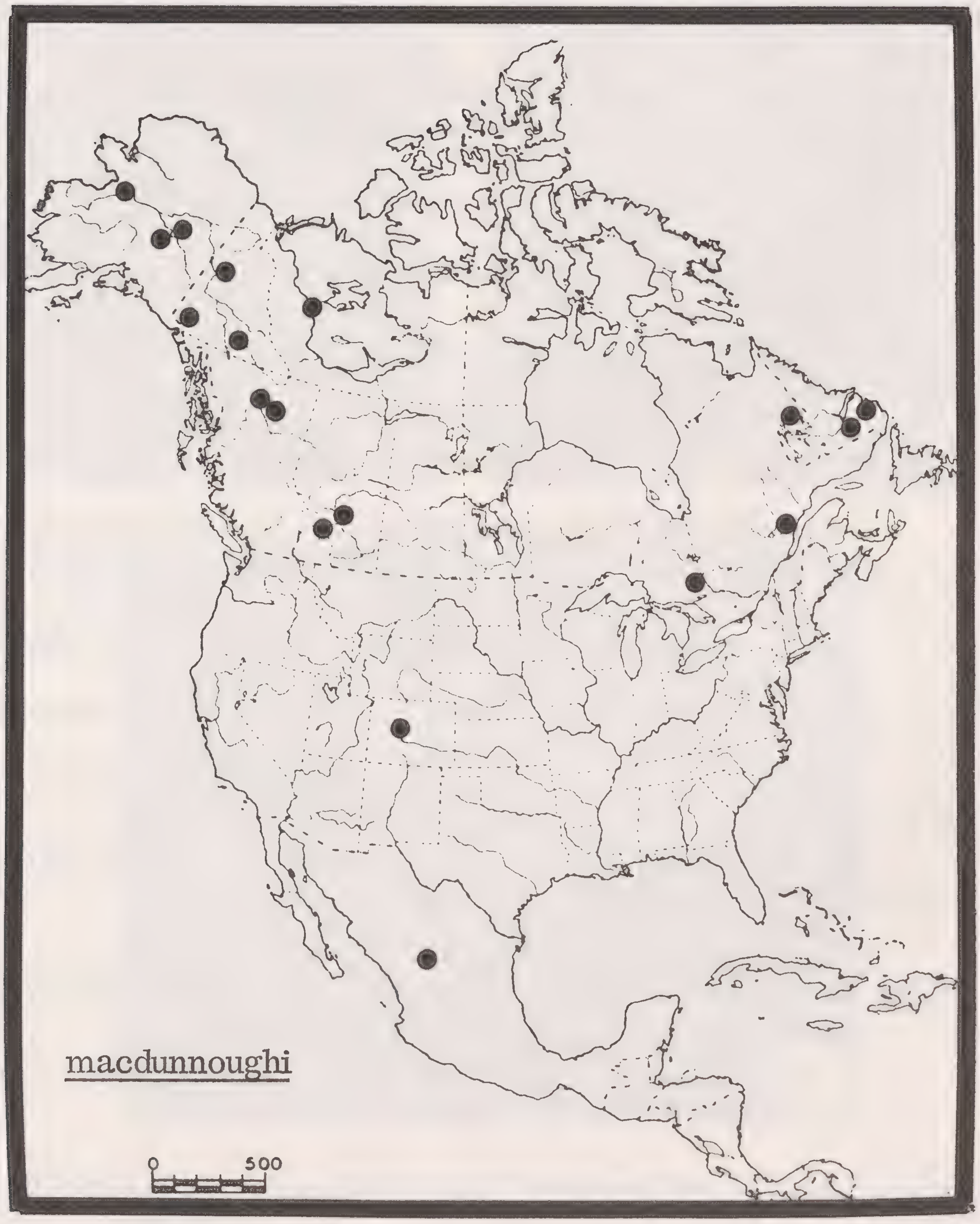
Material Examined. 3 males, 53 females

Distribution. CANADA. Alberta: Banff; Edmonton. British Columbia: Atlin; Racing River; Stone Mt. Pk. Labrador: Cartwright; Goose Bay: Northwest Territories: Norman Wells. Quebec: Knob Lake; Lac Huerd; Laniel. Yukon: Dawson; La Force Lake; mi. 87, Dempster Hwy. UNITED STATES. Alaska: Delta Junction; Fairbanks; Nehana; Unalakleet. Colorado: Gould. MEXICO. El Salto, Durango.

This species is distributed throughout the boreal forest region of Alaska and Canada, and the Rocky Mts. from Alaska into Mexico.

Host and Biology. There are no rearing records for this species but it has been associated with black spruce. Adults are active from May to September with a peak abundance in July.

Remarks. This species is closely related to bimaculata from Japan. It can be distinguished from all North American species of the subgenus Euraspidion in having the abdomen of both sexes entirely black. It is also unique in having the lower tooth of the mandible only slightly longer than the upper tooth.



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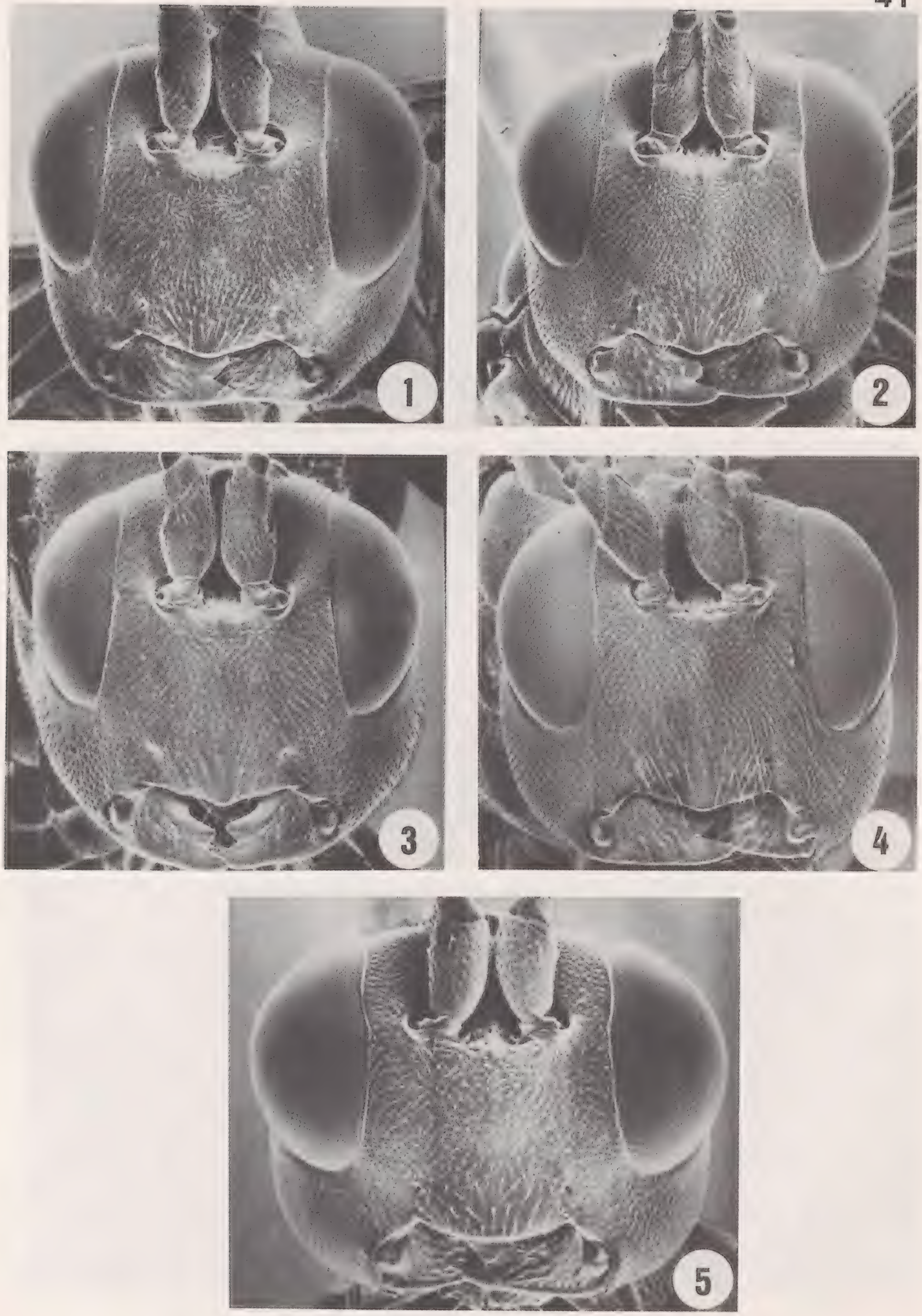
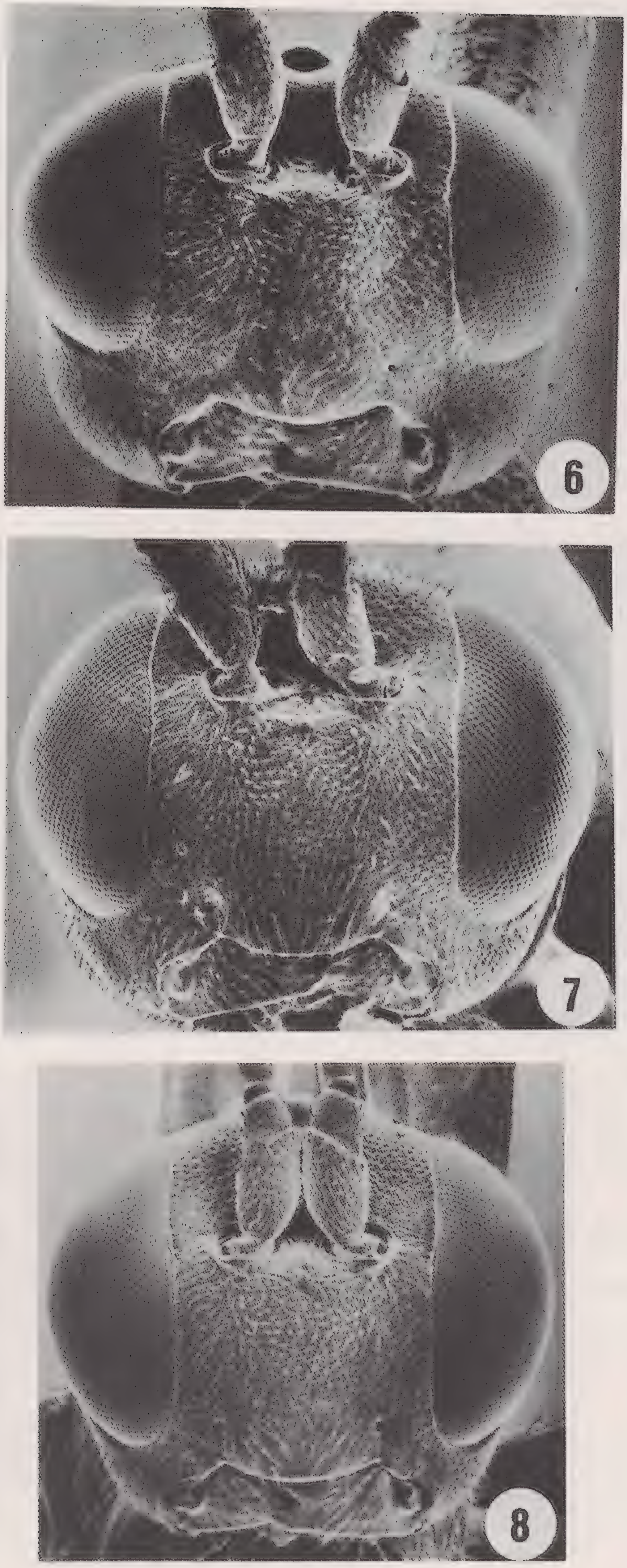
Addenda

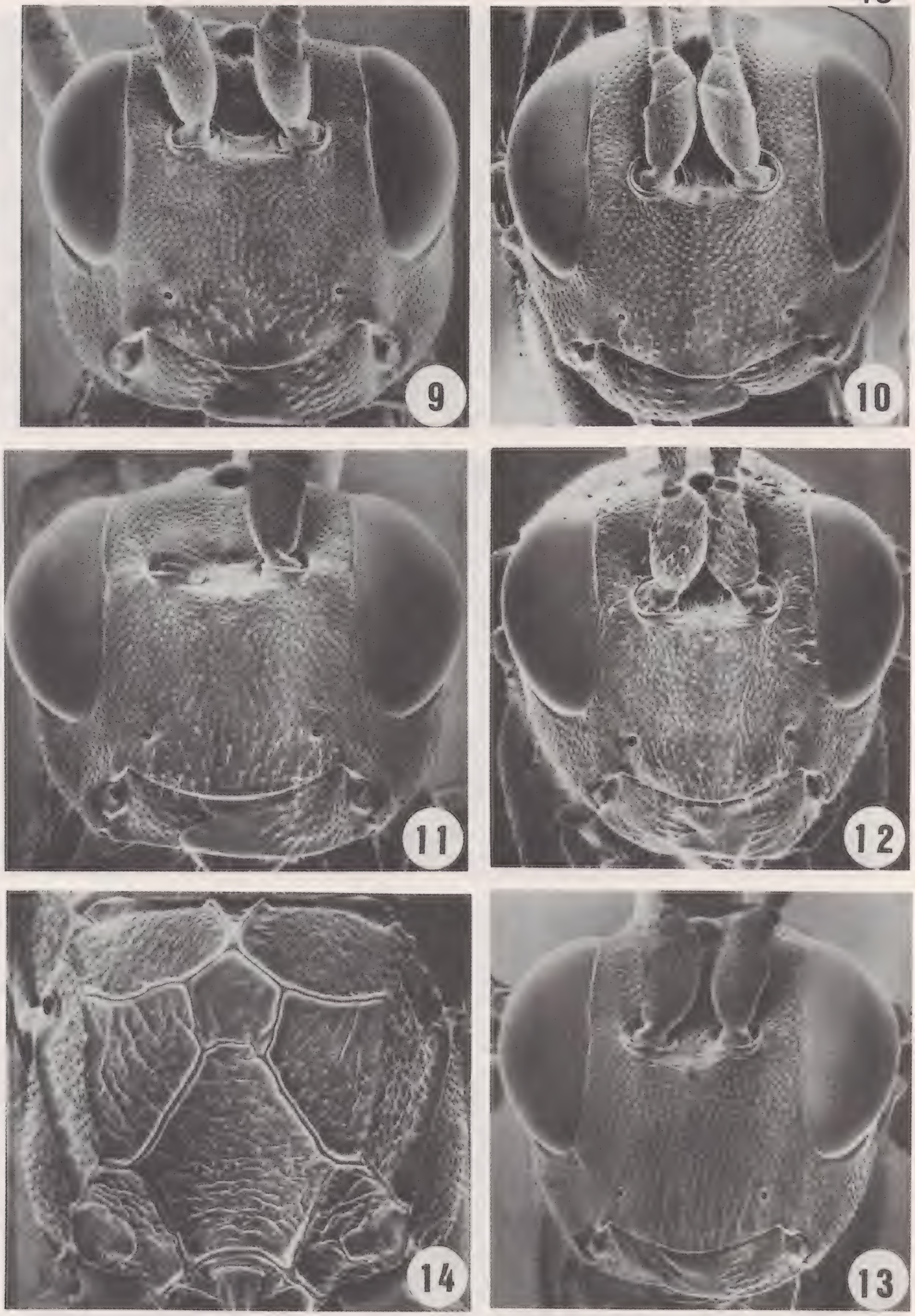
Kriechbaumer, J. 1878. Bitte an die Ichneumonologen. Ent. Nachr. 4: 210-211.



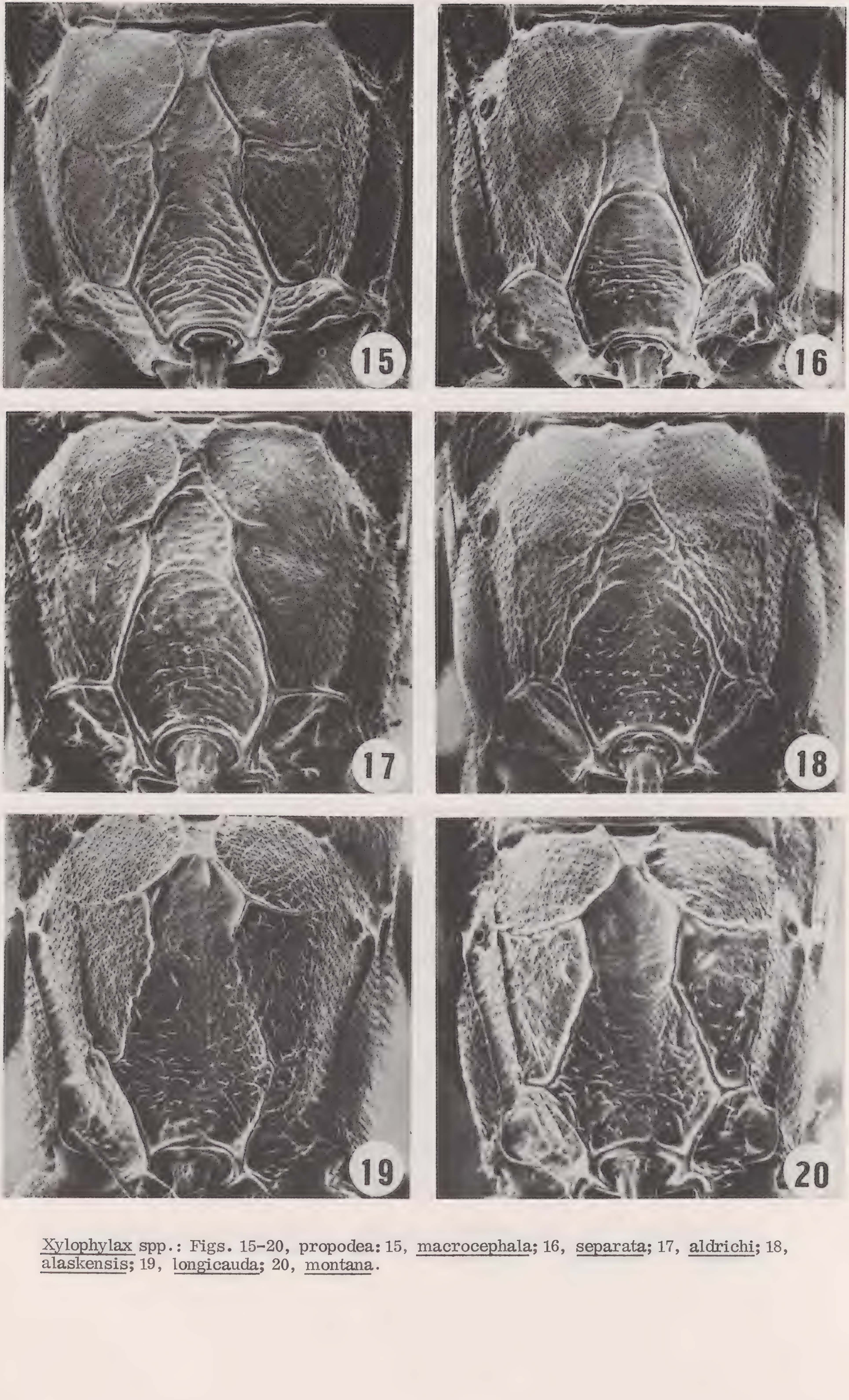
Xylophylax spp.: Figs. 1–5, frontal view of head: 1, macrocephala; 2, aldrichi; 3, separata; 4, alaskensis; 5, longicauda.



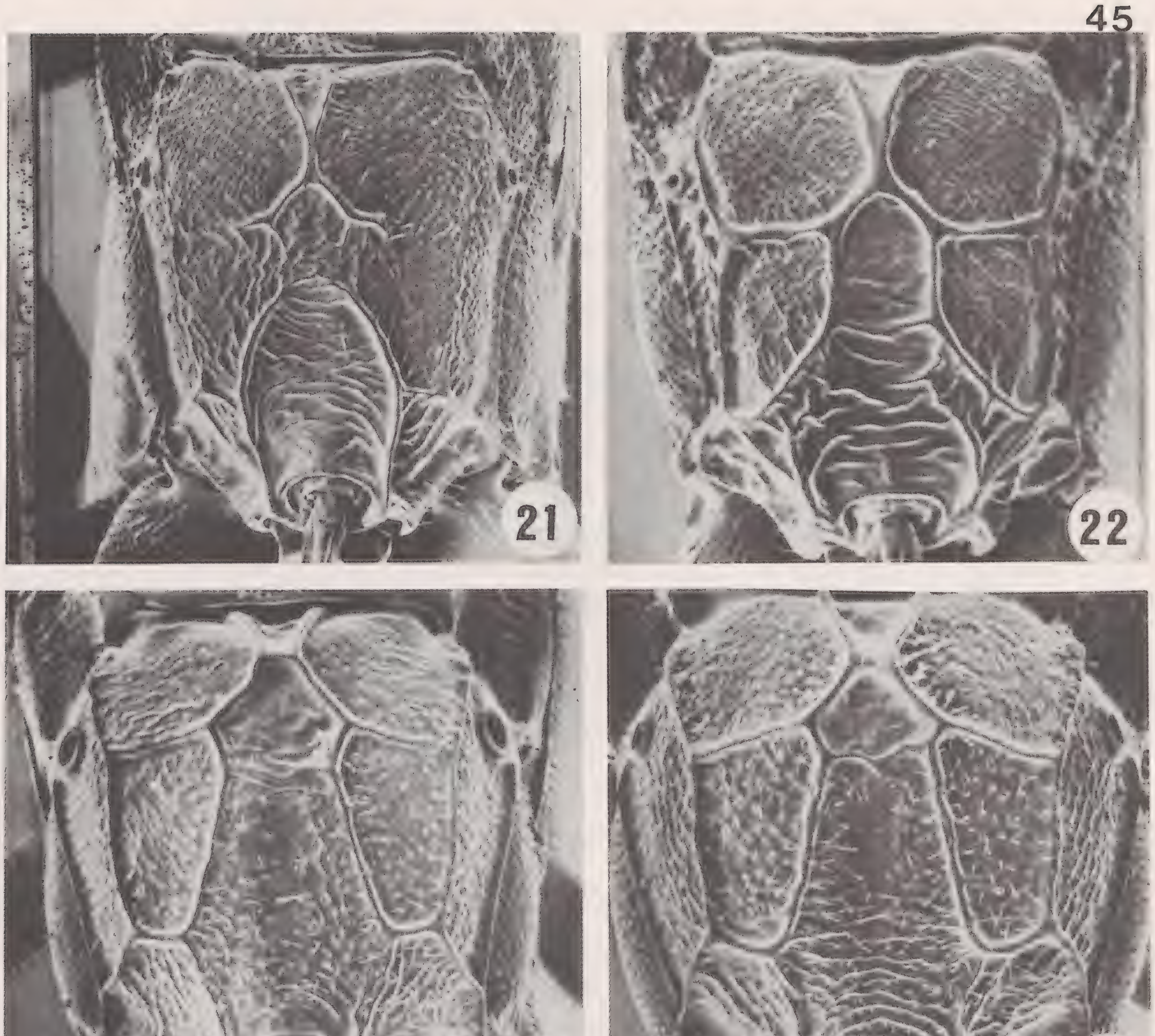
Xylophylax spp.: Figs. 6–8, frontal view of head: 1, *montana*; 2, *albicoxa*; 3, *genalis*.



Xylophylax spp.: Figs. 9–13, frontal view of head: 9, *ruficincta*; 10, *vancouverensis*; 11, *breelandi*; 12, *brevicauda*; 13, *macdunnoughi*. Fig. 14, propodeum: 14, *macdunnoughi*.



Xylophylax spp.: Figs. 15-20, propodea: 15, *macrocephala*; 16, *separata*; 17, *aldrichi*; 18, *alaskensis*; 19, *longicauda*; 20, *montana*.



Xylophylax spp.: Figs. 21–26, propodea: 21, *genalis*; 22, *albicoxa*; 23, *ruficincta*; 24, *vancouverensis*; 25, *breelandi*; 26, *brevicauda*.